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I. Biometrical Studies in Psychiatry. III. The Chances of Death. <i>Walter Freeman</i> ..	425
II. Educational Possibilities of a State Psychopathic Hospital. <i>Franklin G. Ebaugh</i> ..	445
III. Some Central Nervous System Factors in the Make-up of Consciousness. <i>Louis Casamajor</i>	457
IV. Presidential Address: American Psychopathological Association. <i>Ross McClure Chapman</i>	467
V. A Consideration of the Acute Psychoses as Reaction Types. <i>Charles R. Ball</i>	479
VI. Psychotic Reaction in the Psychopath. <i>G. E. Partridge</i>	493
VII. Observations on the Sex Problem in America. <i>Edward Sapir</i>	519
VIII. The Analysis of Personality. A Survey of Psychologists' Experiments. <i>Ives Hendrick</i>	535
IX. The Psychæsthetic Reaction. <i>Nathaniel H. Brush</i>	565
X. Notes and Comment: Dr. William A. White's Quarter Centenary as Medical Superintendent of St. Elizabeth's Hospital, Washington, D. C.....	572
XI. Association and Hospital Notes and News: Association for Research in Nervous and Mental Disease.—Conference on Mental Hygiene in Public Health and Social Work.....	576
XII. Abstracts and Extracts: Some Effects of a Course in American Race Problems on the Race Prejudice of 450 undergraduates in the University of Pennsylvania. <i>Donald Young</i> .— Notes on the Mental Development of Children Exhibiting the Somatic Signs of Puberty Præcox. <i>Lois Doe Kulmann</i> and <i>Calvin P. Stone</i> .—The Normal In- feriority Complex. <i>E. F. Heidbreder</i> .—The Mechanism of Psychic Regression. <i>E. W. Lazell</i> .—Psychic Factors in Juvenile Delinquency. <i>Frederick H. Allen</i> .— The Unmarried Mother: A Socio-Psychiatric Viewpoint. <i>Henry C. Schu- macher</i> .—The Intelligence and Social Background of the Unmarried Mother. <i>Charlotte Lowe</i> .—The Eighth Maudsley Lecture: Dealing with Some of the Work Done to Elucidate the Pathology of Disease Falling to be Considered Under the Rubric "Insanity." <i>Edwin Goodall</i> .—Encephalographische Studien an Chro- nisch Schizophrenen. <i>Jacobi and Winkler</i> .—The Blood Pressure in Psychoneu- roses. <i>S. Barton Hall</i> .—The Induction of Abortion in the Treatment and Prophylaxis of Mental Disorder. <i>J. R. Lord</i> .—Psychoanalytic Treatment of Schizophrenia. <i>Leland E. Hinsie</i> .—The Hypothesis of the Mechanism of the Functional Psychoses. <i>L. C. F. Chevans</i> .—Clinical Contribution to Drug Addic- tion: The Struggle for Cure and the Conscious Reasons for Relapse. <i>Lawrence Kolb</i> .—A Study of the Spinal Fluid Pressure in the Differential Diagnosis of Diseases of the Spinal Cord. <i>B. Stookey</i> and <i>D. Klenke</i> .—Metabolism in Epilepsy. IV. The Bicarbonate Content of the Blood. <i>W. G. Lennox</i> .—Forced Drainage of the Cerebrospinal Fluid. <i>L. S. Kubie</i> .—Experiments with Encephal- ography via the Lumbar Route. <i>E. D. Friedman</i> , <i>W. Snow</i> and <i>J. Kasanin</i> .— Influence of Malarial Treatment on the Spinal Fluid in General Paralysis. <i>H. A. Bunker</i> .—Clinical Note on <i>Staphylococcus Septicæmia</i> with Diffuse Involvement of the Nervous System (Purulent Meningitis; Encephalomyelitis with Involvement of the Basal Ganglia). <i>E. F. Wahl</i> .—Localization in Animals of <i>Streptococci</i> from Cases of Epidemic Hiccup, Encephalitis, Spasmodic Torti- collis and Chorea. <i>E. C. Rosenow</i>	579
XIII. Book Reviews: A Manual of Individual Mental Tests and Testing. By <i>Augusta F. Bronner</i> , <i>William Healey</i> , <i>Gladys M. Lowe</i> , <i>Myra E. Shimberg</i> (Boston: Little, Brown & Co., 1927).—Nerve Tracts of the Brain and Cord. By <i>William Keiller</i> , <i>F. R. C. S.</i> , <i>Edin.</i> , etc. (New York: The Macmillan Co., 1927).—An Introduction to Forensic Psychiatry in the Criminal Courts. By <i>W. Norwood East</i> , <i>M. D.</i> (London), etc. (London: J. and A. Churchill; New York: Wm. Wood, 1927).— Crime and Insanity. By <i>W. C. Sullivan</i> , <i>M. D.</i> , Medical Superintendent Broad- moor Criminal Lunatic Asylum. (London: Edward Arnold & Co.; New York: Longmans, Green & Co., 1924).....	595

AMERICAN JOURNAL OF PSYCHIATRY

BIOMETRICAL STUDIES IN PSYCHIATRY.

III. THE CHANCES OF DEATH.*

By WALTER FREEMAN, M.D.

St. Elizabeths Hospital, Washington, D. C.

This is a study of the disease incidence and cause of death as determined at necropsy in 1150 psychotic patients dying during the last ten years. The material has been classified in two ways:

- (a) According to mental reaction type;
- (b) According to disease manifested.

Both of these terms require some elucidation and qualification.

As I stated in the first paper of this series the formal psychiatric classification, based as it usually is upon the supposed etiology, has been found unsuitable for this particular problem. I have endeavored to get beneath the surface phenomena of the psychosis and to ascertain the dominant trend in the personality reaction. In this part of the problem I owe much to Dr. N. D. C. Lewis who has reviewed most of the histories of these cases and given me his impressions. The result of such analysis of the material is as follows (Chart 1):

	Cases
Schizoid reaction type.....	559
Paranoid reaction type.....	302
Cycloid reaction type.....	134
Epileptoid reaction type.....	101
Unclassified	51
Total	1147

Both male and female are included and both white and colored.

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

Naturally there are many patients thus included who have developed psychoses associated with syphilis or arteriosclerosis of the brain, with senility, and due to infectious and toxic states. The etiology of the disorder, however, has been disregarded, the deviation in the personality of the patient being the basis of classification.

Dementia paralytica has offered the most difficult problem on account of the mental symptoms due directly to the inflammatory and degenerative changes in the brain. We have endeavored, as it

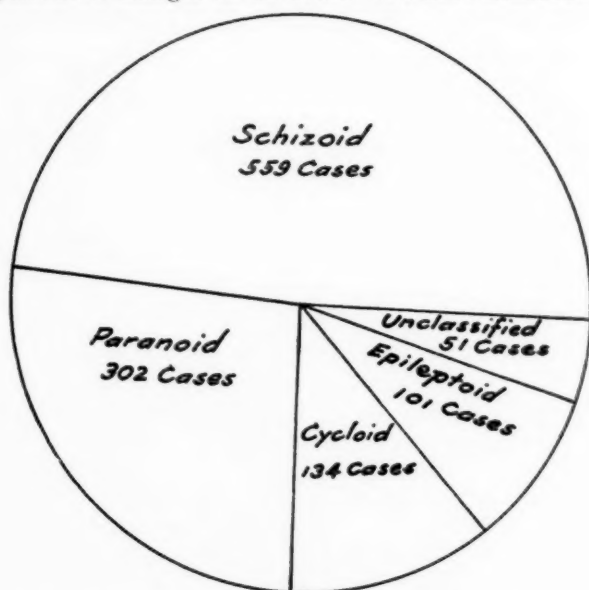


FIG. 1.—Distribution of cases according to reaction type. Male and female, white and colored, all ages. 1147 cases.

were, to remove the paretic excrescence in order to observe the more fundamental personality behavior. In some instances the excitement of the paretic may have been interpreted as the manic phase in a cyclothymic psychosis, and in other instances the convulsions induced may have led to the patient's classification in the epileptoid group whereas had the paretic process been arrested a different personality reaction might have been forthcoming. This uncovering of a very distinct pathologic mental reaction in paretics is a fairly common aftermath of the malaria treatment.

A larger number of groups might have been found useful. The larger the number of groups, however, the smaller the number in each group and therefore the greater probability of error in percentage valuations. After considerable discussion the group presenting only simple deterioration, as found in certain cases of dementia paralytica, senility and dementia præcox, was split up and the individuals reclassified, most of them going into the schizoid panel.

DISEASE SUSCEPTIBILITY.

From the necropsy records (about half of them performed by me and most of the rest by Lewis) the data upon disease were obtained. In this study the occurrence of this or that disease was of primary consequence rather than its effect upon the individual. For instance I have endeavored to ascertain whether the individual presented active tuberculosis regardless of its rôle in the causation of death. In these patients it was obvious from the standpoint of pathology that the immunity to tuberculosis was defective. The same considerations held true in cases of malignant disease. Even though the carcinoma was of microscopic proportions, or the history stated that a growth had been removed by surgical procedures, the patient was listed among those having carcinoma.

In the group labelled "chronic streptococcus infections" were placed those patients presenting cardiac valvular lesions of infectious origin, definite productive inflammatory lesions of the kidneys (chronic interstitial or glomerular nephritis), chronic cholecystitis with stones when important clinically or chronic arthritis. Gall stones as such were considered evidence of chronic streptococcus infection only when other disputable evidence was present such as spondylitis, urinary lithiasis, paralysis agitans or colloid goitre.

In the process of tabulation it was not infrequent to find a particular case entering into more than one category. Under such circumstances the individual was classified in both groups. It was rare to find more than two classes of disease in a single individual, but syphilis and tuberculosis, and carcinoma and chronic streptococcus infections occurred coincidentally in a number of cases, and several of the syphilitic patients also had carcinoma. Only one case of associated tuberculosis and carcinoma was found. Since this

part of the classification has to do with disease incidence rather than cause of death and seeks to elicit information regarding susceptibility to certain types of diseases, such treatment of the material was thought justified, but it must be borne in mind in studying the charts that the same individual might help to swell more than one category.

CAUSES OF DEATH.

In this section we have chosen certain causes of death for their striking character rather than for their numerical importance. The senile and involutional changes incident to age, and the terminal acute infections have been responsible for a large proportion of all deaths, a much larger proportion than would appear from the charts. The question asked, rather, was: What type of individual is more apt to die of an acute infectious disease; what type of individual dies a violent death; in what kind of people do circulatory disasters such as cerebral hemorrhage, coronary thrombosis, ruptured aneurism, etc., occur; who is more liable to die of an intestinal catastrophe (strangulated hernia, volvulus, intussusception, etc.).

There is no overlapping in this group since the outstanding cause was chosen. Overlapping does occur, however, in the "disease incidence" group with the "cause of death" group, although they are both listed in the same charts. Cardiorenal disease, for instance, is often terminated by cerebral hemorrhage, and syphilis occasionally by ruptured aneurism. The disease in such cases was noted in addition to the cause of death. In the main, nevertheless, the tuberculous died of tuberculosis, the syphilitics of dementia paralytica, the cancerous of cancer, and so on.

MENTAL REACTION TYPE AND DISEASE INCIDENCE.

From a comparison of charts 2, 3, 4, and 5 it is evident that the incidence of disease varies considerably in the different groups. These charts are designed, however, more to indicate the distribution of disease and cause of death in individual groups whereas the remaining charts indicate the comparative incidence of individual diseases in the several groups.

Tuberculosis (Chart 6).—The close association between dementia præcox and tuberculosis has long been recognized. This chart

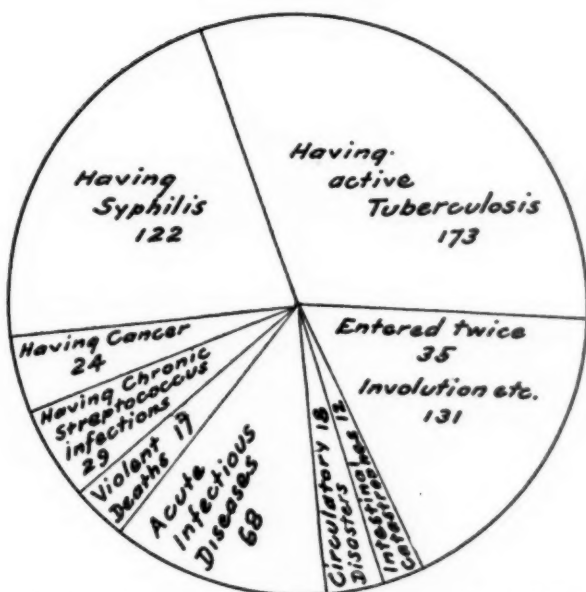


FIG. 2.—Disease incidence and causes of death in schizoid group. Male and female, 559 cases.

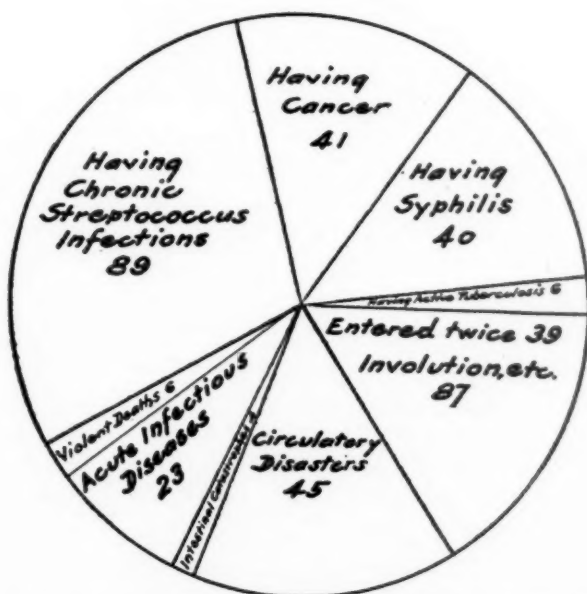


FIG. 3.—Disease incidence and causes of death in paranoid group. Male and female, 302 cases.

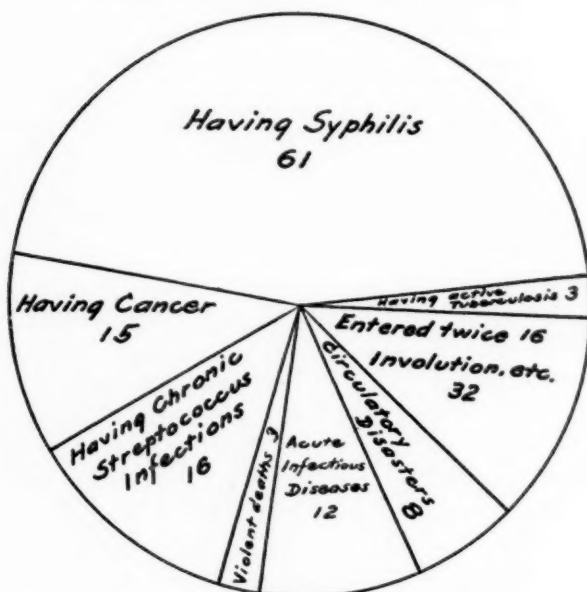


FIG. 4.—Disease incidence and causes of death in cycloid group. Male and female, 134 cases.

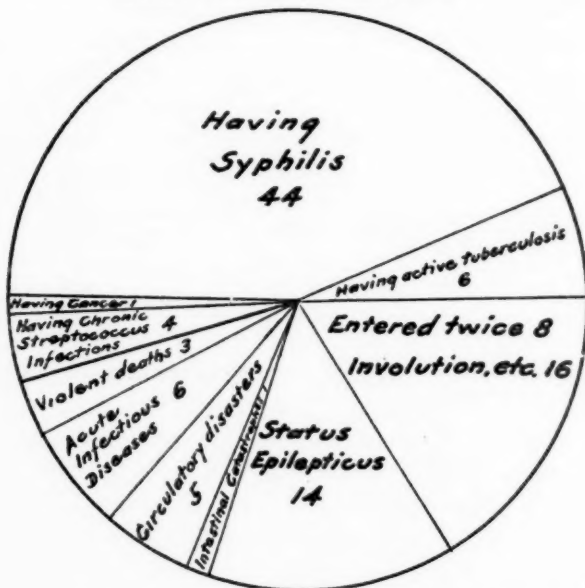


FIG. 5.—Disease incidence and causes of death in epileptoid group. Male and female, 101 cases.

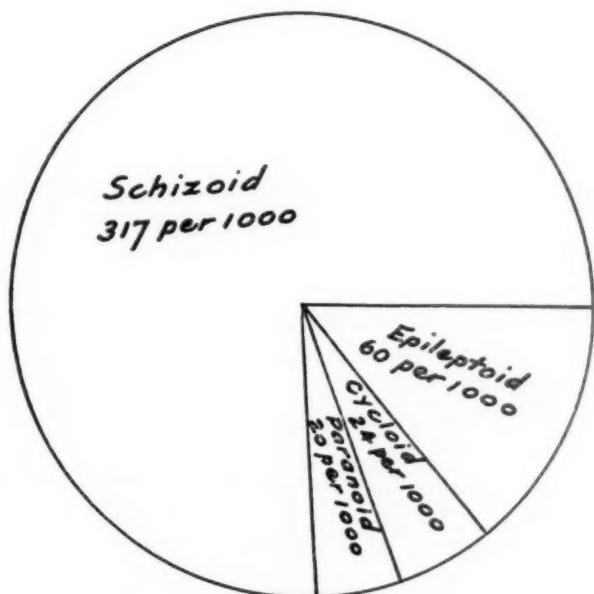


FIG. 6.—Comparative incidence of active tuberculosis.

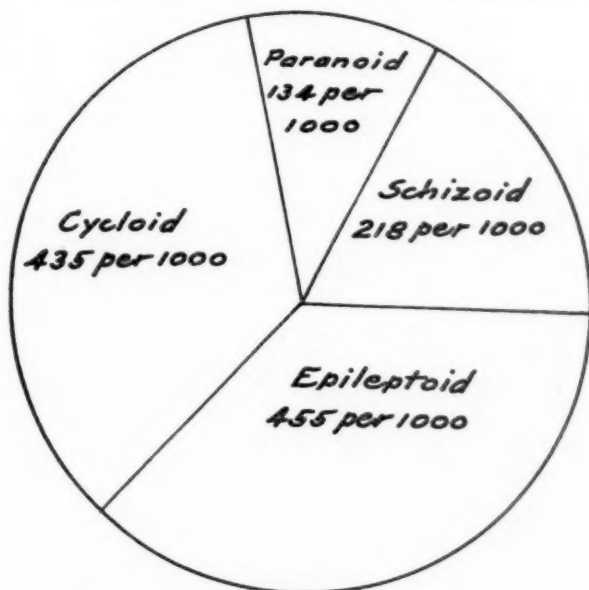


FIG. 7.—Comparative incidence of syphilis.

indicates that its incidence in the schizoid individual is three times as great as in all the other groups combined. The regressive nature of the psychosis is apparently linked with a defective immunity against the disease. The figures do not lose in value when it is considered that many patients diagnosed dementia paralytica or senile psychosis but presenting dominant schizoid traits are included in this category.

Syphilis (Chart 7).—If there is an immunity to syphilis it is not very marked, so that this chart is more of an indication of the type of individual who exposes himself to syphilis. The schizoid individual would appear to contract it somewhat less often than certain other individuals, perhaps on account of his self-centered autistic nature. The low incidence in the paranoid group may be accounted for by the rather frequent aberrations in the sexual life of this sort of individual. Impotence, homosexuality, and diversion of interests to other fields as well as his suspicious character may account for the relatively small percentage of individuals suffering from syphilis. On the other hand the extroverted cyclothymic individual, whose relations with the opposite sex are often promiscuous, makes up quite a proportion of the paralytic dementes. Whether the epileptic exposes himself more often to infection with syphilis is a question that cannot well be answered. The epileptic is not notoriously delinquent sexually, and the Viennese school doubts whether a natural epileptic develops paresis. Probably, as indicated earlier in the paper, the effect of syphilis upon the brain is to provoke convulsions in an individual who otherwise might present no epileptic manifestations. It must not be supposed that every parietic having convulsions was automatically placed in this epileptoid group, but in the face of repeated convulsions there was often no other choice.

Malignant Tumors (Chart 8).—The incidence of carcinoma may well be larger than that indicated in this chart. Since even microscopic growths have been included it would seem obvious that not all of these were discovered. Small nodules undergoing malignant change undoubtedly frequently occur in the prostate, breast and pancreas, giving no symptoms, and not even being found in microscopic examination of representative areas. Figures based on the number of malignant tumors found, however, seem to indicate the predominance of malignant disease in individuals who, at the psy-

chologic level, are compensatory or hypercompensatory. Lewis likes to compare the small group of cells proliferating in one portion of the economy and gradually destroying the body to the small group of ideas that proliferates in the mind without regard to neighboring elements, and finally destroys insight. "Cancer," he says, "is paranoia at the cellular level." This concept may appear fanciful but the association between a paranoid psychological constitution and susceptibility to cancer is too striking to pass lightly

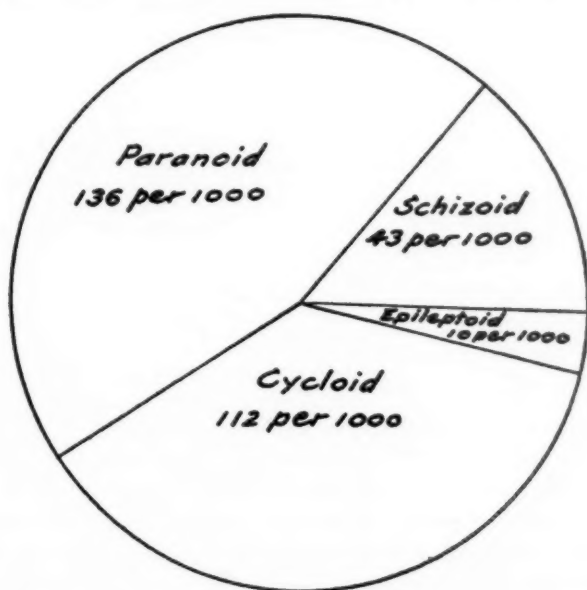


FIG. 8.—Comparative incidence of carcinoma and other malignant tumors.

by. The occurrence of malignant disease in the regressive types is low. Indeed the epileptic individual appears to possess a high immunity to carcinoma. None of our patients presenting convulsions as a consequence of cerebral tumor seemed to be potentially epileptic. The only case of malignant disease found in an epileptic was a primary myxosarcoma of the gall-bladder. Other authors testify to the rare occurrence of carcinoma in epileptics. Necropsy in 240 cases of epilepsy at the Craig Colony in 1925 and 1926 *

* Annual Reports Nos. 32 & 33.

showed only one extraneural malignant tumor, a carcinoma of the pancreas. In view of the reports of insulin convulsions occurring in individuals presenting pancreatic tumors springing from the Islands of Langerhans, even this patient might not have been an epileptic from the biologic standpoint.

Chronic streptococcus infections (Chart 9).—The incidence of chronic streptococcus infections is strikingly similar to the incidence of malignant disease, being predominant in individuals of compensatory nature. There are several factors that may explain

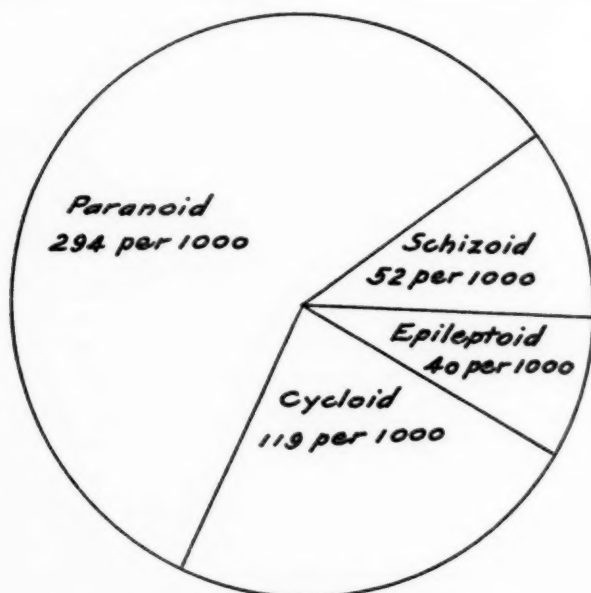


FIG. 9.—Comparative incidence of chronic streptococcus infections.

this predominance, an important one being age. Both malignant disease and productive inflammation are more prevalent in later years, and the age distribution at death shows that the paranoid individuals live longer than the schizoid. To be strictly accurate the equivalent age groups should be compared. The fact remains, however, that many schizoid patients reach an advanced age, so that this objection is not altogether valid. Youthful individuals presenting chronic streptococcus infections as well as carcinoma are almost invariably found in the cycloid or paranoid groups.

Another factor that may influence the figures and even be of primary significance, though difficult of actual demonstration, is the reaction of the individual to the local infection. It is a matter of common experience that teeth and gums may be seriously diseased with copious discharge of pus and destruction of bone, without causing more than mild local inconvenience to the patient. On the other hand teeth that appear healthy on inspection may have at their roots localized collections of devitalized tissue containing organisms that occasion the most serious systemic disorders. It may be argued that in the former case the connective tissue defenses of the body are insufficient to cope with the infection, which therefore breaks down the tissue and evacuates itself, and that in the latter case where teeth and gums appear healthy yet harbor foci of infection, the proliferative activity of the fibroblasts walls in the invading organisms not only preventing satisfactory drainage through an external opening but even shielding them from immune bodies. Under such conditions compensatory activity on the part of the connective tissue is as harmful in one way to one individual as it is beneficial to another infected, say, with tuberculosis.

The reaction of the individual to the systemic infection is a third possible factor. It may be, in view of the overproduction of fibrous tissue in the paranoid individual that greater anatomical deviations are produced than occur in an individual of different make-up. In the regressive person granted that the infection is not sufficiently severe to cause death, the process of resolution and resorption might remove the evidence of previous infection to such a degree that at the time of necropsy it would make little impression upon the pathologist.

Whatever the explanation it is apparent that chronic streptococcus infections are more prominent in paranoid and cycloid individuals than in others, so much so as to suggest a biologic relationship.

Acute infectious diseases (Chart 10).—There is no significant difference in the susceptibility of persons of different psychologic types to acute infectious diseases (lobar pneumonia, influenza, dysentery, erysipelas, etc.).

Violence (Chart 11).—Accidents and suicide annually take their toll from among the inmates of a psychiatric hospital however careful a watch is maintained. The figures given are probably low

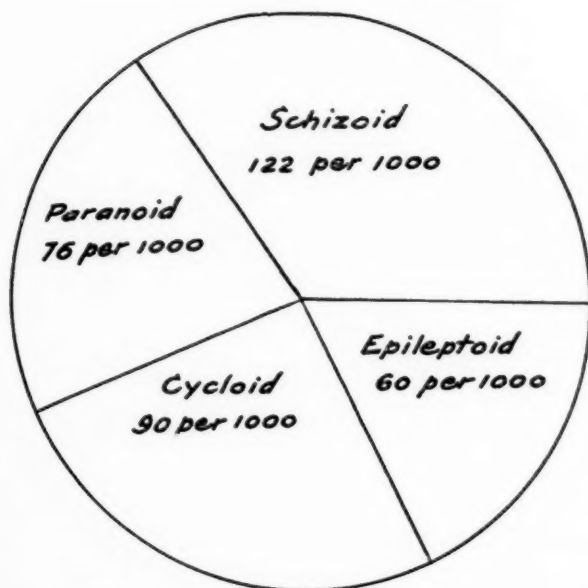


FIG. 10.—Comparative incidence of deaths due to acute infectious diseases.

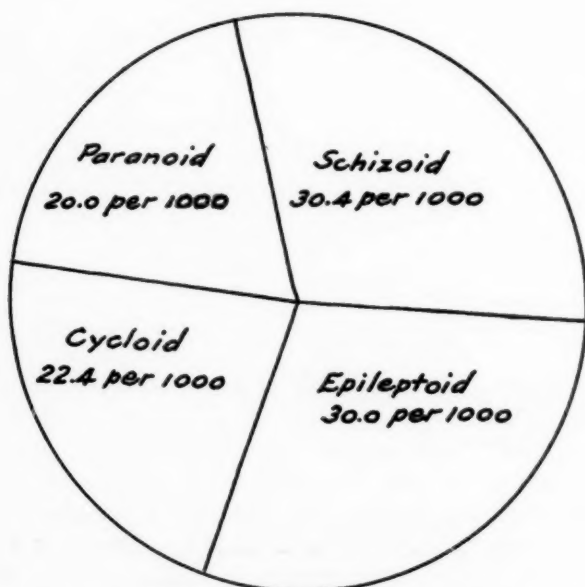


FIG. 11.—Comparative incidence of deaths by violence.

since many bodies are claimed by the coroner. Jumping from heights and strangulation seemed to be the most available methods of suicide, though swallowed foreign bodies accounted for a number of deaths. Some epileptics strangled on gastric contents regurgitated during convulsions. Accidental falls with broken bones followed by cerebral hemorrhage or hypostatic pneumonia accounted for most of the other violent deaths. The distribution is surprisingly even throughout the groups.

Circulatory Disasters (Chart 12).—In this group of affections, again, the person who is prone to abnormal activity both of body and of mind is also susceptible. In addition, chronic streptococcus infections of the kidneys with hypertension frequently terminate in vascular occlusions or ruptures. This sort of death in the manic-depressives and paranoids has been noted by many observers and particularly stressed by Lewis.

In this chart as well as in the others, however, it is well not to lose sight of the minorities. They are not the exceptions that prove the rule so much as they are indications that there is no hard and fast rule stating that an individual possessing a special psychologic reaction must possess an unique susceptibility to disease. This is as nearly possible with regard to dementia præcox and tuberculosis, but the relationship can never be considered exact, it can at most be termed intimate. There is a fairly intimate relationship between the paranoid state and circulatory disasters.

Intestinal Catastrophes (Chart 13).—The predominance of schizoid individuals in this category may be due to the prevalent bodily architecture. It will be noted that none of the cycloid group is represented in this chart. The immunity of the cycloid individual may be due to the prevailing pyknic habitus as contrasted with the asthenic habitus common in schizoid patients. The elongated relaxed abdominal wall often associated with relaxed inguinal rings and a long mesentery make for unusually free intestinal mobility in such individuals. Such anatomic deviations may result in strangulated hernia, volvulus or intussusception.

PRACTICAL APPLICATIONS.

Alleviation of suffering and prolongation of life are functions which the physician has been exercising since the beginnings of medicine. With the rise of scientific medicine, however, has come

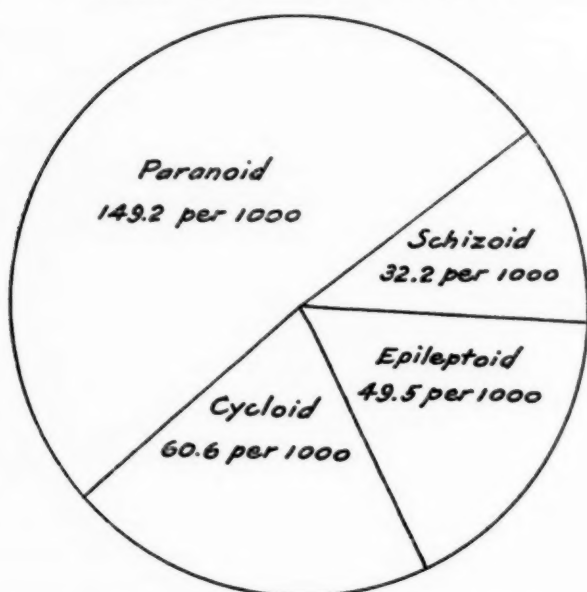


FIG. 12.—Comparative incidence of deaths due to circulatory disasters.

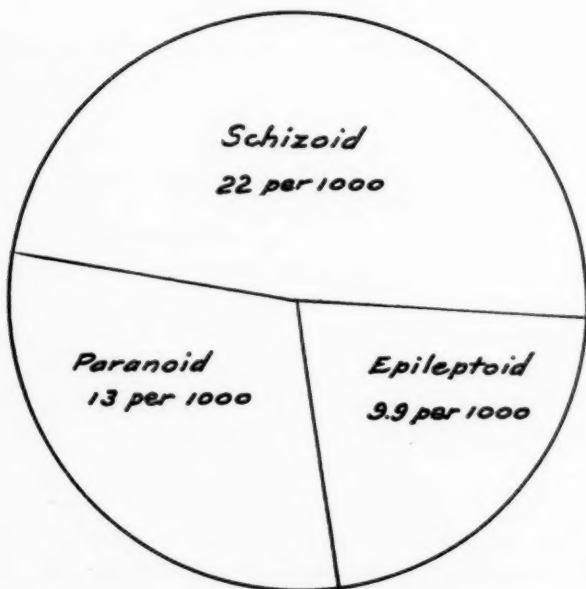


FIG. 13.—Comparative incidence of deaths due to intestinal catastrophes.

the factor of prevention. When the weak spots in the human economy are picked out it becomes more easily possible to guard these spots, to practise prevention. In the study outlined above some weak spots in the human constitution are indicated. Individual susceptibilities to disease of certain types show a fairly high degree of correlation with the psychologic responses to the external world. Therefore, *ceteris paribus*, the incidence of disease may fairly safely be predicated upon the basis of the mental reaction. Not infrequently in cases of obscure diagnostic problems in patients coming to necropsy, consideration of the psychiatric history has influenced the decision upon the pre-section diagnosis. The balance lies well upon the credit side.

This study indicates, therefore, that we should be more than usually alert to detect tuberculosis in the individual showing schizoid traits, whereas malignant disease and focal infections should be suspected in patients with psychoses of compensatory character upon much slighter evidence than in other patients. Factors in the prevention of malignant disease are practically unknown, but in the chronic streptococcus infections to which paranoid individuals are subject, prevention may be carried out by eliminating foci of infection.

The prevention of tuberculosis in the hospital milieu would appear to be much simpler than it really is. It is a fairly common experience that a patient who has lived in the hospital for upwards of twenty years develops acute pneumonic tuberculosis and dies within a month. Other individuals resist examination, conceal their symptoms, present a terminal illness that is apparently a matter of days, and come to necropsy with advanced consolidation and cavitation. Under such circumstances the dissemination of tubercle bacilli is inevitable. Tuberculosis in the schizoid individual is usually of the rapidly advancing type that is almost invariably fatal. Therefore it does little good to treat the patient after he has manifested definite symptoms of activity of the disease. Preventing contact by isolating the tuberculous and building up a sort of artificial resistance to the disease are measures that offer the most in controlling tuberculosis. Periodic temperature surveys are not difficult to carry out on large numbers of patients. Such surveys have been made at St. Elizabeth's Hospital in the past and have yielded a surprising number of apparently healthy patients with definite

signs of active tuberculosis. In building up artificial resistance to tuberculosis the stage has not yet been reached when reliable results may be expected from tuberculin. Heliotherapy both natural and artificial is a strong and reliable addition to our therapeutic armamentarium. During the summer months more outdoor existence and less clothing would probably reduce the death rate. During the winter months the prophylactic application of ultra-violet light is suggested.

An apparent contradiction in the treatment of tuberculosis is met with in the compensatory type of individual. Less than 5 per cent of the cases of active tuberculosis occur in this group, but there are certain indications that the disease must be handled along entirely different lines from the disease as it occurs in the regressive individual. If the restless, extroverted, hypomanic patient is put to bed and denied all activity he goes down hill steadily, whereas if left to himself he remains in the open, works with astounding vigor, eats heartily and overcomes the disease. There are almost always healed tuberculous lesions at the apices in cycloid and paranoid patients.

In the prevention of circulatory disasters it is again useful to single out on the basis of combined physical and mental examination the group of individuals liable to the affection and to apply to them in particular the precepts laid down for the prevention of heart disease. In asthenic types hernias should be watched and abdominal symptoms noted with concern lest acute intestinal obstruction prove quickly fatal.

By thus dividing up the population according to the mental reaction and to the susceptibility to disease indicated in this paper it will be more easily possible to apply intensively methods of prevention to single groups that might not only prove useless but actually harmful to other groups.

SUMMARY.

Based upon the study of about 1100 psychotic patients coming to necropsy in the past ten years, figures are presented to show graphically what has always been recognized, that individuals in their susceptibility to disease vary according to their psychologic responses. The preponderance of tuberculosis in the schizoid individual is contrasted with the susceptibility to carcinoma, chronic

streptococcus infections and circulatory disasters in the extroverted individuals, particularly the paranoid. Methods of prevention of morbidity and mortality are suggested. It would seem possible to apply these preventive measures intensively to the groups to which they are best adapted.

DISCUSSION.

DR. KARL W. BOWMAN (Boston, Mass.)—I would like to inquire of Dr. Freeman whether he worked these out at all statistically with regard to age and with regard to sex. For example, in the work which we did on patients who are living, we found that circulatory disorders were rather more common among the affective cases, but they were persons who were older. It occurred more in women than in men. I wondered whether in this work he has done he has made an estimate of that sort.

DR. KAMMAN.—I should like to ask Dr. Freeman if he took into consideration the racial differences in his various patients. As he stated the manic depressive or cycloid type of individual is much more inclined towards sexual promiscuity and therefore much more liable to venereal infection. It has been stated that the schizoid or Nordic type, such as we have in this part of the country, is more susceptible to tuberculosis than is the syntonie. I wonder if the racial vulnerability to tuberculosis might explain the high percentage of deaths from this disease among the schizoid or Nordic type? Has Dr. Freeman any statistics along this line?

DR. FREEMAN (closing.)—I presented only the figures based on whole groups. They have been analyzed more closely according to age, sex and race, but when we examine small groups we are more apt to find large variations and great errors in percentage calculations.

The only two races with which we dealt were the white and colored, and no attempt was made to divide them up further into the Nordic type or the Mediterranean or even to classify them at this time according to Kretchmer. We are taking photographs of each body as it comes to necropsy. At some future date I hope to correlate such data more closely.

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EDUCATIONAL POSSIBILITIES OF A STATE PSYCHOPATHIC HOSPITAL.*

By FRANKLIN G. EBAUGH, M. D.,

Director, Colorado Psychopathic Hospital, Denver.

Education concerning mental disorders should make up a large and very important part of the activities of a state psychopathic hospital. These educational aims should be broad in their scope and should attempt to meet the needs of the entire state as well as the needs of the individual communities. A state psychopathic hospital functioning as an integral part of the state medical school in close connection with a state general hospital has exceptional opportunities in this important field of education. These possibilities can be discussed as (1) intra-mural and (2) extra-mural activities.

INTRA-MURAL ACTIVITIES.

In teaching clinical psychiatry to the medical students the same methods worked out in the older established fields of medicine can be utilized. Emphasis is being turned more and more away from the didactic method of teaching to establishing closer clinical contacts with the individual patient and hospital wards for each student. The clinical clerkship method as established in the medical teachings of Sir William Osler can be developed in psychiatry and prove of great value. In the University of Colorado ten hours are devoted to the course in psychopathology for second year medical students. This course is given immediately following the completion of the work in general pathology and neuropathology, the same hours and time being utilized. The Meyerian concepts are freely utilized, whereby the student is presented the difference between working in anatomy and physiology, biology and psychobiology. In anatomy the students study structure, in physiology the functioning of parts of the total organism, in biology the life of individuals or units, in psychobiology these foundations at work

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

in mentally integrated behavior of the total organism. The students readily accept psychopathology as a study of disintegrated behavior of the total organism. In the study and understanding of behavior the student must see facts and events as they are, in the way they affect living persons meeting real situations and tasks. He approaches psychiatry as though it were a missing chapter in physiology as has so often been emphasized by Adolf Meyer. He accepts psychopathology in the sense of a study of behavior reactions that contribute to mal-adaptation of the individual in meeting the demands of the environment. Each student is asked to fill in his own life chart and to complete personality studies on himself. This helps to give the student knowledge concerning his own personality resources and adaptive difficulties. In the second year the outline for the mental examination is presented to the student and he is given opportunity to utilize these mental examinations in his contacts with the patients, in preparation for the ward work of the third year. A few typical psychiatric syndromes are presented to the second year student and he is asked to write out a discussion regarding his observation of the general behavior, stream of talk and activity, affect and special preoccupations of each patient seen. His skill in these observations is compared to his skill in physical diagnosis as pertaining to inspection, palpitation, percussion and auscultation methods.

During the third year the student spends two hours per week of the fall quarter and two hours per week of the spring quarter, amounting to forty hours, in psychiatry. During this time the discussion of the seven main types of reaction is completed and each student is assigned one patient to study weekly, or he is asked to make a summary of his mental examinations of a group of patients following the discussion of each reaction type. During this year the student has, therefore, examined and had actual contact on the ward with approximately fifty patients. Following the discussion of each reaction type he is given a written quiz devoted almost entirely to his actual contacts with the patients. Few routine questions are asked but an average case history and abstract is presented to the student that he may make his own formulation of the reaction type and indicate the development of the disorder and state the symptoms on which his formulation is based. He is also asked to comment on the preventive possibilities brought out

in the personal history and the situational background in each case. In addition to the actual clinical contacts the student establishes in the ward work in the Colorado Psychopathic Hospital, we have found recently that it is of value near the end of the third year course in psychiatry to give each student a typical case abstract bringing out salient features of average problems he will later meet in his practice. The students are given two typical case histories each week and they work out individually and in groups the salient features of the reaction types present and hand in brief reports concerning the differential phenomena, the situational factors that have resulted in the establishment of the psychosis, and the treatment they would advise. The students associate these exercises with the case history method they have in their course in medicine. We utilize very frequently in the course of instruction for the second and third year students a formula expressing the dynamics of the development of each reaction type as is shown in the following individual plus situation equation. (Table 1.) This gives the student a method of graphically representing the data presented regarding the development of a psychosis. It is interesting in this connection to hear of students commenting that they have been I plus S'd too much by the instructors. Lantern slides similar to the following (Table 2) are of great value in summarizing the discussion of each reaction type through the utilization of this individual plus situation equation. The individual plus situation equations presented and constructed by the students during the third year course can be compared with their own individual plus situation equations previously made.

At the end of the third year there is a formal examination which usually consists of the presentation of various case abstracts to the student in which he is asked to formulate the reaction type, to trace the development of the disorder, indicate characteristic symptoms that resulted in his formulation as well as to indicate treatment and preventive possibilities. In other words, the student can only be prepared adequately for the examination by using in every way possible his actual ward contacts with the individual patient. Only one-third of the examination consists of the usual formal questions. The above approach to psychiatry, of course, does not present anything new although it seems to me in our clinic it has helped in breaking down the former isolated position of psychiatry and has increased the value and scope of clinical teaching in

TABLE I.

CLASSIFICATION OF MENTAL REACTION TYPES.

In this Clinic the following formula represents the classification used. There are seven main reaction types to be studied and differentiated. The resources found in the individual's make-up must be considered, the type of situation he is called upon to meet, the result of this equation being the reaction to the situation.

INDIVIDUAL (What pt. has to react with)	plus	SITUATION (What pt. has to react to)	leads to	REACTION Adjustment Normal behavior— Maladjustment— resulting in:
<p>A. PHYSICAL:</p> <ol style="list-style-type: none"> 1. Body type. 2. Features. 3. Physical defects. 4. General health. <p>B. INTELLECT:</p> <ol style="list-style-type: none"> 1. General level. 2. Intelligence quotient. <p>C. HABITS:</p> <ol style="list-style-type: none"> 1. Capacity for habit formation. 2. Personal and social habits. 3. Industrial habits. 4. Drugs, etc. <p>D. INSTINCTS:</p> <ol style="list-style-type: none"> 1. Self-preservation. 2. Race-preservation. 3. Herd. <p>E. EMOTIONS:</p> <ol style="list-style-type: none"> 1. General emotional tone. 2. Drive. 3. Stability. 				
<p>A. TOXIC FACTORS:</p> <ol style="list-style-type: none"> 1. Focal diseases and infections. 2. Drugs. 3. Alcohol. <p>B. ORGANIC FACTORS:</p> <p>Definite brain changes to explain mental disorders; syphilis and various degenerative neurological conditions, epilepsy, cerebral trauma, etc.</p> <p>C. PSYCHOGENIC FACTORS:</p> <p>Environmental factors. Home surroundings, financial loss, worry, economic stress and strain, etc.</p> <p>Disturbances of inner mental life. Repressions, conflicts, reaction to broken engagements, sex episodes, etc.</p>				
<p>A. SEVEN MAIN TYPES OF PSYCHOSES:</p> <ol style="list-style-type: none"> 1. Organic Reaction Type. <ol style="list-style-type: none"> a. General paresis. b. Senile deterioration. c. Cerebral arteriosclerosis. d. Traumatic psychosis. e. Epilepsy, etc. 2. Delirious and Hallucinatory Reaction Types (Toxic Psychoses). <ol style="list-style-type: none"> a. Alcoholic psychoses. b. Psychoses due to drugs and other exogenous toxins. c. Psychoses with somatic diseases. 3. Paranoid Reaction Types. 4. Affective Reaction Types (Manic Depressive or Reactive). <ol style="list-style-type: none"> a. Depression. b. Excitement. c. Anxiety. 5. Psychoneurotic Reaction Types. <ol style="list-style-type: none"> a. Hysteria. b. Psychasthenia. c. Anxiety neurosis. d. Hypochondriasis. e. Chronic invalidism. f. Other types. 6. Primary Constitutional Reaction Types. <ol style="list-style-type: none"> a. Psychopathic inferior. b. Mental deficiency. 7. Schizophrenic Reaction Types (Dementia Praecox). 				
D. RECOMMENDATIONS:				B. RESULTS: After treatment. 1st yr., 2d yr., 3d yr., 4th yr., 5th yr.

TABLE 2.
No. 2044. WHITE, MALE, AGE 30. UNOCCUPIED. CATHOLIC. SCHIZOPHRENIC REACTION TYPE WITH TUBERCULOSIS.

<p>MAIN FACTS: Pt. was admitted for the first time November 12, 1926, with complaint by his brother that he "had turned to religion and said he could see into the future." In August, 1926, the brother had received a letter from Father J. saying pt. was acting queerly and was over-religious. Pt. had been ill with tuberculosis for six years. He thought he could predict the date of his death; that he was "a power from God," etc. He never developed insight into his condition but improved physically and mentally and was taken from the hospital by his father December 20, 1926. He then began to do his own cooking, living alone, not working, and attending church every day. Persisted in his delusions. On Sunday, March 25, 1928, he created a disturbance in the church. He suddenly realized immediately afterward that he was mentally ill and came to the hospital voluntarily seeking help. Cooperated in all possible ways and developed good insight. Discharged April 22, 1928, markedly improved. Tuberculosis quiescent for past year.</p>	
<p>INDIVIDUAL MAKE-UP: A. PHYSICAL: 1. <i>Body type:</i> Asthenic. 2. <i>Features:</i> Somewhat angular. 3. <i>General Health:</i> Poor. Tubercular.</p>	<p>SITUATION: A. TOXIC: 1. Tuberculosis, quiescent. B. ORGANIC: None. C. PSYCHOGENIC: 1. Worries over physical status. 2. Inability to work. 3. Seeking cure for tuberculosis. 4. Dependence on family. 5. Living alone and doing own cooking. 6. Only emotional outlet in religious activity. 7. Previous mental upset. 8. Tuberculosis becomes quiescent. 9. Sudden delusional outbreak with development of some insight.</p>
<p>B. HABITS: 1. <i>Capacity for Habit Formation:</i> Normal. 2. <i>Personal Habits:</i> Well formed. Pt. neat, clean and tidy. 3. <i>Social Habits:</i> Not well developed. 4. <i>Industrial Habits:</i> Fairly good prior to onset of tuberculosis.</p>	<p>REACTION: 1. Pt. recognizes mental illness in himself. 2. Seeks hospital treatment for a cure. 3. Willing to cooperate. 4. Anxious to recover.</p>
<p>C. INTELLLECTUAL: 1. Average adult level.</p>	
<p>D. INSTINCTS: 1. <i>Self-preservation:</i> Normal. 2. <i>Race-preservation:</i> Underdeveloped. No sexual outlets or contacts. 3. <i>Herd:</i> Underdeveloped.</p>	<p>TREATMENT ADVISED: 1. Hospitalization. 2. Frank discussion. 3. Desensitization. 4. Development of social and recreational outlets. 5. Curtailment of religious activities. 6. Industrial adjustment.</p>
<p>E. EMOTIONS: 1. <i>General emotional tone:</i> Depressed, serious, seclusive, suspicious. 2. <i>Drive:</i> Normal, but not well controlled nor well directed. 3. <i>Stability:</i> Fair.</p>	<p>RESULTS: Pt. discharged April 22, 1928, with excellent insight and prospect of complete social recovery.</p>

the psychopathic hospital. It appears to further a closer and more flexible coordination between the various departments in the medical school and judging by the growing interest of the student and his desire, especially during his third year, to help out in our out-patient clinic, the subject of psychiatry as a part of his medical education is receiving greater emphasis by the individual student. The teaching of psychiatry, after all, is not to create specialists but to give each student a practical knowledge of the subject that he can utilize in his medical practice and chosen specialty. The present third year class has already asked for an elective course to be given in the senior year devoted entirely to the psychoneuroses. The graduate physician cannot be successful in properly treating the entire patient unless he has some understanding of the forces that enter into the adjustment and maladjustment of the individual.

The growing tendency in our school to have combined clinics is interesting. For instance, one such clinic was given in connection with the department of obstetrics and gynecology in which the question of psychiatric aspects of the puerperal period was discussed. It is hoped that these combined clinics may be stimulated and furthered in the future.

The fourth year instruction is carried out entirely through clinical clerkships. The student spends five weeks, consisting of two hour periods, in the Psychopathic Hospital. In groups of six they are assigned all routine admissions to the hospital. They conduct daily complete mental examinations which are closely supervised by the ward physician. They have opportunity of actually studying and treating each patient under supervision. Since the majority of patients reporting in the out-patient clinic are children, it is possible to present the general problems, aims and methods of a child guidance clinic to each student.

The second aspect of the intra-mural possibilities of education concerning mental disease is opened up through regular group conferences with relatives of patients. These conferences are held on regular visiting days, and during the three years in which they have been conducted have been of the greatest value in presenting to those most interested in the patient, namely, his relatives, the aims and methods of the Colorado Psychopathic Hospital. These conferences with relatives as stated in a previous paper seem to

us to represent a vital part of the broad educational program of a state psychopathic hospital. By means of the conferences relatives are able to come into actual contact with the entire staff of the hospital and so are helped to understand the aims and the purposes of each department in the care of individual patients. The attendance at these conferences, the cooperation shown by the relatives and the number of cases referred by them to the out-patient clinic have been a pleasing and natural result of this type of education. These group conferences have also resulted in the elimination of many administrative difficulties and in the saving of considerable time for the hospital staff. It seems to me that they are an absolute essential in the development of any state psychopathic hospital program. The accompanying photograph is that of a conference with relatives held May 4, 1928. (Plate I.)

The third type of intra-mural education is, of course, an obvious one although often neglected. All patients on discharge from the hospital should be given what is analogous to a prescription blank, that is, a résumé of their difficulties as well as recommendation made by the psychiatrist as a result of the period of observation, study and treatment in the hospital. This advice on discharge was given to a patient who had been admitted to the hospital as a result of a second schizophrenic "blow out." (Table III.) Giving

TABLE 3.
COLORADO PSYCHOPATHIC HOSPITAL.
FOLLOW-UP ADVICE.
No. 2044.

Given to patient on discharge from hospital:

1. Secure rooms where you will have more social contacts.
2. Take your meals in a boarding house or club.
3. Secure regular employment.
4. Increase social activities.
5. Report to Out-Patient Clinic regularly every two weeks on Friday mornings.
6. Limit church activities to attending Sunday services.

Date April 22, 1928.

L. F. W., M. D.

written advice and instructions routinely on discharge to patients emphasizes to the individual patient as well as to his relatives that necessary treatment was given in the hospital and that follow up

care is essential for furthering the progressive adjustment of the individual patient. Patients are further desensitized to psychopathic hospital treatment by this method and are encouraged and advised to mention that they have been treated in the psychopathic hospital. This also helps the slow but sure decline of the feeling on the part of the community that going to a psychopathic hospital constitutes a social disgrace. Giving written follow-up advice to the individual patient discharged back to the community is a great help to the patient's physician in the community and leads to more frequent return to the out-patient clinic than we have found previous to the employment of this method. The routine of the hospital in sending out complete abstracts of each patient to the family physician referring patients for study is an aid in this program.

The fourth intra-mural educational activity has been that of education through contacts with other fields of medicine. These contacts are furthered by an active consultation service. For instance, during the past two years the requests for psychiatric consultation have practically quadrupled, to the extent that either Dr. Johnson or myself now make daily visits to the adjoining General Hospital. Likewise scarcely a day passes without two or more consultants from the Colorado General Hospital visiting the Psychopathic Hospital. These contacts are of the greatest value in giving proper treatment and in mutually stimulating further understanding between the field of psychiatry and other branches of medicine and surgery. We see evidence from every department of the close dovetailing and linkage with the Psychopathic Hospital. We also see evidence that it is accepted that the psychiatrist can contribute much in helping the surgeon and internist with their patients as well as with the management of convalescent and chronic patients. One skeptical friend who in 1925 referred to the Psychopathic Hospital as "the nut house" and did not feel that it was worth his time to see patients in consultation, became one of our most active consultants, and psychiatry rose markedly in his estimation. There is certainly no excuse for the psychopathic hospital of today continuing in isolation from other divisions of medicine and surgery.

The intra-mural educational possibilities have also extended into the nursing field and during the past year twelve post-graduate nurses have entered the hospital for training. The opportunities for training of social service workers is also great.



CONFERENCE WITH RELATIVES MAY 4, 1928.

Through the generosity of the Commonwealth Fund two-year fellowships have recently been assigned to this hospital which further increase our educational possibilities.

EXTRA-MURAL EDUCATIONAL POSSIBILITIES.

The extra-mural educational possibilities of a psychopathic hospital are equally as important as the intra-mural and they consist chiefly of the contacts made with other professional and social groups, especially the courts, legal profession, teachers and the schools. The Colorado law of 1927 whereby all individuals accused of a crime and making a plea of insanity must receive complete observation in the Psychopathic Hospital or the State Hospital, gives great opportunity for service and increasing contacts with the courts and court officers. It has been accepted in practically all cases that the reports from the hospital are non-partisan reports and up to date twenty-three cases have been examined. The recommendations made to the court from the hospital following observation and examinations have been carried out with few exceptions. During the past year a course of "Psychiatry in Relation to Law" has been given at the Denver University School of Law and Dean Wolcott of the Law School feels this course has been very valuable and has asked that it be given regularly in his school. The University of Colorado Law School has made a similar request. This course consists of eight lectures taking up the various aspects of forensic psychiatry. Next year it is hoped that this time may be doubled and we feel that much has been accomplished in the brief course given to instill a closer understanding and cooperation between the two professions. The educational program and recommendations adopted by this association last year were especially emphasized in this course. As a result of these contacts both in the courts and the law school we hope the nucleus for later development has been established and that eventually all offenders will receive routine psychiatric studies. There is considerable evidence that a broader viewpoint is necessary than the past legal viewpoint whereby the offender is punished often by the revenge motive instead of through an understanding of the dynamic forces that underlie the antisocial or criminal behavior. The contacts with the juvenile court likewise are growing and it

is hoped in the future that many more of these cases can receive psychiatric examinations in the out-patient clinics.

Through the medium of the mobile clinic, the most widespread extra-mural contacts have been made by the hospital during the past three years. These contacts have been of the greatest value in furthering the understanding of the Psychopathic Hospital in the program for the prevention and treatment of mental disorders. For instance, during the past three years one hundred and one communities have been visited and sixteen hundred children have been examined. It can be seen how much is accomplished by a mobile clinic on our return visits, unfortunately to only a few communities, and also by the fact that thus far several communities of the state have asked for and are willing to finance the actual traveling expenses of having a permanent clinic organized. One such clinic has been organized already and three others are being contemplated for the coming year. Contacts made through these clinics enable us to evaluate the social forces surrounding the individuals who come into the hospital for treatment, and to collect at close range data as to schools, arrangements for recreation, types of vocations, and numerous other important factors that contribute to the social welfare and adjustment of patients discharged from the hospital. The mobile clinic enables us to bring before each community in a thorough and intimate fashion the aims and purposes of the hospital, matters pertaining to the admission and discharge of patients and information as to current trends in preventive psychiatry and closer contacts are made with the local physician. It makes possible the neuropsychiatric examination in outlying communities of adults and of children of pre-school and school age, who present behavior and habit training difficulties. A mobile clinic seems the best way to meet the demands of a large mountainous state and in the beginning of the organization of this hospital we were fortunate in serving as a part of the State University Extension Bureau and the Colorado Child Welfare Bureau, in association with six other state agencies doing public health work. Through the activities of the mobile clinic the ground work for permanent base clinics has been made possible and it is hoped that in the future these base clinics will enable careful follow-up study of all children previously examined by the mobile clinic.

During the first year of the hospital, studies were conducted in the state industrial schools for boys and during the past two years the psychometric examinations for the state industrial school for girls have been made. In the future we hope that a permanent traveling team and organization from this hospital can be created to take care of the base clinics as well as to further the needed organization for psychiatric work in the industrial schools and possibly at the state penitentiary.

The extra-mural educational possibilities of the hospital likewise have been furthered through extension courses which are of special value if given to the professional group, especially the school teachers. Brief courses have been given for parents as well as numerous talks before all of the service organizations, clubs, health and social organizations throughout the state. During the past few months requests have been received from several colleges for mental hygiene talks before the students. These talks have been unusually well received and, I feel, offer great possibilities for the future.

SUMMARY.

A summary of the educational possibilities of a state psychopathic hospital may be given as follows:

A. INTRA-MURAL EDUCATIONAL POSSIBILITIES.

1. Adequate teaching of medical students emphasizing a diminution in didactic work and increasing actual ward contacts with patients.
2. Educational possibilities through regular group conferences with relatives. This should be a vital activity of any psychopathic hospital.
3. Education through the medium of patients discharged from the hospital. Each patient should be given written advice analogous to that given in other medical fields.
4. An active consultation service will help break down the barrier between psychiatry and the other fields of medicine. In this connection it is important to have joint clinics with representatives from other fields.

B. EXTRA-MURAL EDUCATIONAL POSSIBILITIES.

1. Further contacts with the courts and the legal profession should be made. In this connection a brief course in psychiatry in the law school has been given.

2. The traveling clinic has been found to be of great educational value, especially since it furthers contacts with schools, social and health organizations in all districts. It should pave the way for the establishment of permanent base clinics and it is hoped that eventually a permanent traveling team will be created.

DISCUSSION.

DR. GEO. K. PRATT (New York, N. Y.).—For a number of years psychiatrists have been urging their colleagues in other branches of medical specialties to impart to medical students the fact that the whole patient enters the hospital. It seems to me that the plan we have heard described this morning by Dr. Ebaugh is one of the most encouraging opportunities to teach medical students that the whole patient enters the hospital that perhaps has yet been developed.

It is no easy thing, as each one of you here this morning will agree, I am sure, to sell an institution to a community in a successful manner. Yet I am sure Dr. Ebaugh perhaps has sold his hospital to the community in which it is located in a very superior sort of way. It was my privilege a month ago to visit the Colorado Psychopathic Hospital and to see some of the really extraordinary things that are going on there. I don't think I have ever been in a community that has a kindlier and, at the same time, a more intelligently informed attitude toward a hospital for mental diseases than does Denver for the Colorado Psychopathic Hospital.

It also seems to me that while a psychopathic hospital of course deals primarily with acute incipient and presumably curable types of mental diseases, and while for that reason such a plan as has been described this morning may be easier to apply in a psychopathic hospital than in a state hospital for mental diseases, yet it also seems to me that in the admission wards of practically every state hospital for mental diseases in this country, there lies an opportunity to duplicate much of the educational work which you have had described by Dr. Ebaugh this morning.

Practically every admission ward holds within it certain types of patients that lend themselves well to the instruction of medical students. Of course those are already being used in numerous instances. What I have especially in mind is the utilization of patients and procedures in these admission wards of state hospitals for the mentally sick, for the purpose of community education.

The relatives' conferences which Dr. Ebaugh has described I think are splendid for the education of the public in the community in which it is

located. I would heartily endorse to every hospital member here this morning the possibility of considering whether or not a similar plan might not be introduced into at least the admission wards of all their hospitals.

DR. J. ALLEN JACKSON (Danville, Pa.).—I would like to ask the possibilities of carrying the educational activities of the psychopathic hospital into other universities aside from medical schools and law schools, if it is possible and practical. It seems to me that the other educational institutions offer as many fields for educational possibilities as pre-medical, medical, pre-law and law.

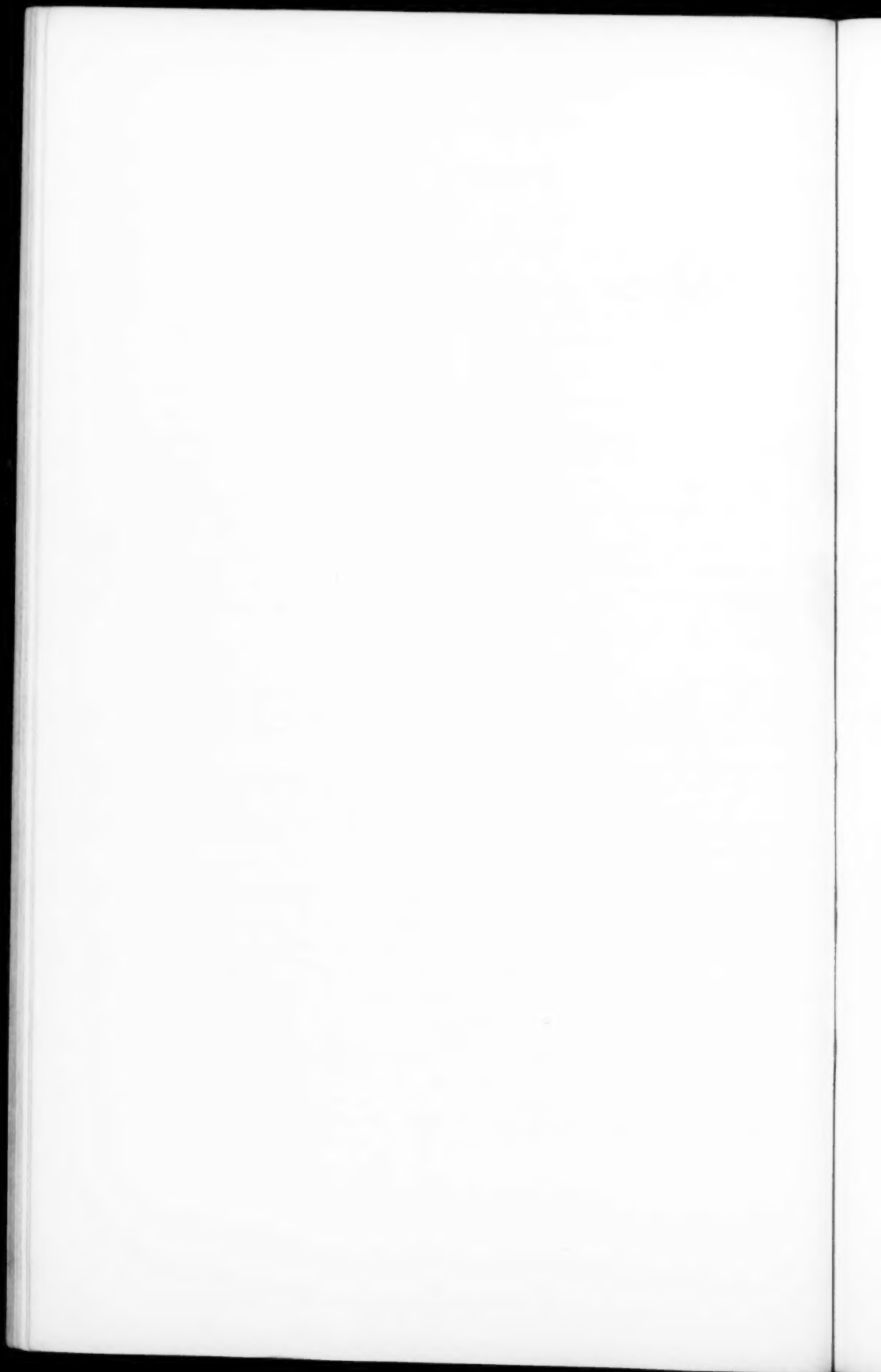
DR. HENRY I. KLOPP (Allentown, Pa.).—We are carrying out much of the work at some of our Pennsylvania institutions that has been suggested by Dr. Ebaugh, through community activities in connection with universities, colleges, normal and high schools. Contact can readily be made with these institutions.

The work which Danville and Allentown State Hospitals are doing is of the same character. Not only does it apply to pre-medical students, but those who are taking up psychology, civics, criminology and economics.

We know that the communities and educational institutions, after they become conversant with what our state hospitals for care and treatment of mental diseases are doing, will grasp the opportunity afforded which is of much benefit to the student and the hospital.

DR. FRANKLIN G. EBAUGH (closing).—I skipped over two pages of the paper in which I described the contacts we had with other institutions. In general we adopt the policy of accepting invitations particularly from the normal schools. We are keenly interested in starting the work that has been so well performed in Pennsylvania.

We have given a series of ten to twelve mental hygiene talks in the normal schools and in practically all of the state educational institutions. We expect the demand for the talks will increase in proportion to the success of the community education.



SOME CENTRAL NERVOUS SYSTEM FACTORS IN THE MAKE-UP OF CONSCIOUSNESS.

By LOUIS CASAMAJOR, M. D.

When faced with such a title there rises in one's mind a welter of definitions with which the present writer intends to have nothing whatsoever to do. Psychological nomenclature has never been easy of definition and the general haze of the subject has been rendered still more hazy by attempts to define terms and define again the definition. One cannot enter into a discussion of the possible existence of a consciousness as such, nor can one discuss consciousness without considering its background and basis—the enormous amount of mental activity which remains always below the conscious level—the unconscious. What the present writer has to say really applies more to the unconscious than to consciousness because there is so much more of the former.

Anatomists are prone to talk glibly of the mind as the function of the cerebral cortex and so long as they do not go beyond this simple statement or make no attempt to prove it, one can have little quarrel with them. But when they attempt to interpret the good old fashioned "human soul" in terms of neurone or even neuroglia physiology, neuro-anatomy suffers as grave an injustice as does psychology when the personality is regarded as a product of ductless gland activity. Possibly more so, for a secreted soul has more appeal to credence than one composed of nerve currents.

One must start with the assumption that the nervous system has something to do with mental life, including one of its most recently acquired levels—consciousness. Comparative studies have shown that brain size, brain form, brain structure, and especially end-brain development may be taken as indices of the relative efficiency of reactive capacity of species, if not of individuals (Tilney). Other work has demonstrated that in developing mammals in the early days and weeks of extra-uterine life, the acquisition of reactive capacities and the relative efficiency with which those acquired are utilized, proceeds in close parallel with the myelinization of the

brain stem especially in the region of the mid-brain (Tilney and Casamajor). It is simple to follow the steps of development, both of conduct and of myelinization, successively up through the mid-brain, but when the fore-brain begins to blossom into function, development happens too rapidly for classification.

All of life consists of reaction and in animal life, with which we are now interested, we find two types of reaction. The first is the internal reaction type, the reaction of individual organs to themselves and to each other—the endo-reaction or physiology. The other is the reaction of the entire organism to its environment which we may call exo-physiology or psychology. This reaction of the individual to its environment is dependent in part on the environment, but in the main in the reactive capacity of the individual. This reactive capacity is more or less efficient, depending upon the integration of factors which compose it—reflex, emotional, mnemonic, etc. Relative efficiency of reactive capacity may be summed up in the word “intelligence.”

There can be no doubt that the nervous system is the system which institutes and controls the reactions to the environment and we see the picture of reaction efficiency going hand in hand with the progressive development of the nervous system from the lowest invertebrates up through the highest of the vertebrates. The ganglionic chain of the invertebrates and the spinal cord were primarily centers of reflex activity. Reflexes are obligatory and as they increased in number, “head ganglia” developed in connection with the mouth region of animals, “to free the individual from the tyranny of reflex actions” (Langdon Brown). We see in the development of the brain the development of a mechanism for the control of reflex activity in the interest of reactive efficiency (intelligence).

In vertebrates the brain developed more or less successively from behind forward and in each developmental step is seen the formation of centers for the localization of mechanisms for the evaluation of afferent stimuli capable of eventuating in reflex activity. This function of evaluation of each group of afferent stimuli resulted in the formation of “centers” for the control of reflex activity. Probably these centers at first could function only to allow a reflex to occur to suppress it, more or less in the interest of reaction

efficiency. Later many of them acquired the function of establishing the motor response on some other than the original afferent impulse. This is the "conditioned reflex," of which we shall speak again, which probably was the first thing to start the reflex control function along the path which leads to that which is conscious.

The hind brain is the oldest and simplest of the reflex controlling organs and while it interests itself primarily in the evaluation and control of afferent stimuli which evoke visceral reflexes (endophysiology), yet also it is the seat of the more complicated reflex or partially reflex acts which have to do with the establishment and maintenance of the normal physiological position in space. These so-called "righting reflexes" have as afferent stimuli impulses arising from the peripheral vestibular mechanisms and on the motor side involve nearly all of the skeletal musculature. Surely control is needed to permit such an extensive reflex motion to be successful. We have shown that this mechanism is fairly efficient in the kitten at birth and becomes rapidly more so with the further myelinization of the hind brain tracts.

While the hind brain responses are mainly of the visceral sort, in the mid-brain we see the somatic beginning to predominate. The brain from the mid-brain up is mainly exo-physiological in function. The tectum of the fore part of the hind brain has elaborated into the cerebellum, that great organ of balance, motor, and possibly other coordination which serves to make all movement more efficient. In the elaboration of the tectum of the mid-brain we get the first hint of what the tectum may be capable of when it becomes the seat of special sensation activity; a capacity which has reached its highest expression in the development of the tectum of the fore-brain—the cerebral cortex. The tectum of the mid-brain is differentiated into the colliculi, the inferior pair of which serve as a center for the evaluation and probably the memory storage of auditory stimuli. They govern reflex responses to sounds as is shown by the development of sound reflexes in the animal coincident with the myelinization of fibers running from these tectal organs to motor nuclei and tracts in the tegmentum (Tilney and Casamajor).

The superior colliculi subserve the same functions for sight as do the inferior for hearing. Their fibers do not receive their

myelin sheaths until some days after the myelinization of the optic nerves and the opening of the eyes in the cat, and with the development of the intra-collicular fibers and those going from them to the motor nuclei of the tegmentum the animal begins to utilize its sight, as is evidenced by the following of moving objects with the eyes. Up to the time of the development of the superior colliculi connections the animal does not appear to use its opened eyes for looking.

No field opens up more avenues for fascinating speculation than does the nervous system and one must ever be on guard lest speculation take on too much of a teleological coloring. The possibilities of the nervous system have been and are so great that one can only briefly touch on them. In the evolution of the nervous system we see an interesting chapter opening when the superior colliculi assumed their dominant rôle and acquired that layering of grey and white matter that is the prototype of a cortex. Among the fish the teleosts took precedence over the ganoids probably in great measure due to the greater development of the sight functions which produced the enormous optic lobes (superior colliculi) which give its brain its main gross and microscopic characteristic.

When after centuries, the birds split off from the reptile stem, again we see the superior colliculi expanding out into enormous optic lobes that make up a good part of the bulk of the brain. Neither of these "eye brained" animals progressed very far in ontogenetic development. Their sight reactions are extremely efficient as sight reactions, but the isolation of them and the paucity of their correlation with other senses and sense memories have served to restrict their general efficiency and so to restrict the intelligence of the animal. That they have mental processes no one can doubt nor that those processes possess considerable efficiency, yet one well may doubt whether any of these processes possess that cognitive clearness we call consciousness nor are capable of that inter-associational elaboration that may be reason. Probably these functions exist only in those animals that are "whole brained" in the specialization of the fore-brain tectum, rather than simply "eye brained" in the elaboration of the colliculi.

With the advent of the age of mammals we see, at first, the sense of smell playing the dominant rôle in the sensorium. Such

had been the case in the shark and with increasing emphasis throughout the order of reptilia. The mammals started out definitely to specialize on the olfactory sense. Throughout the reptilia and lower mammals smell was the only fore-brain sensory function and the fore-brain tectum functioned almost exclusively as a smell reception organ. The elaboration of the function of this part of the tectum accounts for the great evolutionary development of the mammals. In the mammals smell became the principal gnostic sense and the vast majority of the animals of this order undoubtedly utilize smell memories and impulses as the basis for the most accurate concepts they have of elements in their environment. In the fish and the reptiles smell probably was never much of a gnostic sense; in fact, they probably have very little of gnosis in any of their reactions. In the forms with large optic lobes, especially the birds, sight must certainly have been a gnostic sense, but this specialization seems to have been just as much an off-shoot from the main line of progressive evolution as was the development of wings.

The path of nervous system evolution seems to have been along the line of development of the olfactory sense. The forms which persisted in "smell-mindedness" rather than "sight-mindedness" have surely gone the farthest. Smell was a better basis than sight for psychological evolution leading up to consciousness, and it had its termination in the fore-brain tectum which earlier had shown no particular attributes or limitations.

So the "smell-minded mammals became more and more efficient in their reactions as they became more efficiently "smell-minded," but on smell alone they probably would not have developed psychologically much further than have the birds with their optic lobes specialized much more than any other part of the brain. However, other gnostic sense began to be represented in the fore-brain tectum and probably acquired greater discriminative or gnostic qualities from their nearness to smell—the main gnostic sense. We do not know when these developments of fore-brain (cerebral) representations of the other gnostic senses occurred or why. It would take the study of many embryo brains from the lower forms to answer this question. Tilney noticed in the sheep embryo the developing connection between the optic lobes and

the occipital lobes of the cerebrum. Probably still earlier than this taste arrived in juxtaposition to smell in the temporal lobes. We are inclined to lay such great importance on the special senses as gnostic, in the sense of concept forming, that we are apt to overlook that most important muscle-tendon-joint-position sense that brings to us practically all we can know and learn of form, texture, weight and consistency of objects.

The localization of this type of sensibility is laid down in a very definite pattern in the cerebral cortex on either side of the Rolandic fissure, with the head and face area the most ventral and the leg and foot most dorsal. Kappers believed that this pattern was determined by the way in which this type of sensibility developed as a cortical or gnostic one. These sensations showed gnostic possibilities when it became possible for the animal to use them to learn something of the nature of various objects he met with. In the lower mammals the mouth is the principal organ for the utilization of objects to learn of their nature. First by smell and taste some concept of the nature of an object was obtained. Later in biting and chewing it the muscle-joint sense of his jaw mechanisms enabled him to learn still more of what humans call the "feel" of objects. Kappers cites this earliest development of muscle-joint sense in the jaws as a gnostic sense in close connection with smell and taste, likewise gnostic, as the main determining factor in the location of the head and face and jaw area ventrally in close proximity to the smell and taste centers in the anterior end of the temporal lobe. The pattern for the rest of the body elaborated itself from here dorsally.

In the further evolution of the mammals up through the primate group the growth of the cerebrum (the fore-brain tectum) kept rapid pace with the rapid strides made by the intelligence. This organ, which was now the seat of all that is gnostic in the gnostic sensations, has shown a truly remarkable development and elaboration. With the evolution of the hand from the fore-paw a new and most efficient organ for appreciating and evaluating the environment appeared and the parietal lobes broadened with the increased representation of this new and valuable muscle-joint sense (Tilney). When later the eyes came close together so that binocular stenosopic vision became possible (Langdon Brown), the sense of

sight, already highly gnostic in value, became still more gnostic. With the appearance of these two new sensibilities of accurate discrimination, the former new in its localization and the latter new in its greatly increased efficiency, in the cerebral cortex, it is easy to see why smell lost its status as the dominating gnostic sense. This sense, which was good enough for the conceptual needs of the lower mammals, must needs have been replaced by some others more accurately discriminative to meet the needs of an animal of greater reactive capacity and efficiency and one whose mental states were characterized by much more of that cognitive clearness we call consciousness.

With all of sensory impulses and memories that go to make up cognition brought together into one organ; with ample opportunity for expansion for each and all and with ample opportunity for the establishment of associational pathways from each to all, we see a plausible basis for a psyche composed of mental states whose common characteristic may be the cognitive clearness of consciousness. With so much value resident in different sensory experience there was needed only a coinage to make this value interchangeable and to release it in terms of psychic work.

The coinage of the mind is the symbol. It is in the formation and utilization of symbols that mental functions have gone so far ahead of anything previously known in physiology that men of older school conceived of psychology as being something quite different from all other physiology, and the mind as being entirely different from all other nervous functions. The physiology of symbolism requires more time than I have to give to it and more experience than I can bring to bear. None can say when symbolism first appears. Is it not possible that the earliest and simplest symbols are the conditioned reflexes of Pavlov? When an animal learns to utilize, as a stimulus for a fundamental reaction, a sensory impulse originally quite foreign to the reaction is it other than a symbol? When a sensory impulse together with its group of memories both in its own and its somewhat related fields can be used to bring about activity previously unassociated with it, it must take on much more of meaning than another which never has had such a capacity. This very fact should raise it above the level of a simple memory and closer to that of an idea or a thought.

A memory of such potentialities probably is capable of greater and wider elaboration than one of simpler function. Is it accurate to state that when an animal is capable of developing conditioned reflexes that he is in the same degree capable of ideation or thought? At the same time may one not ask whether the pathway to the reflex act from the conditioned impulse is a direct one with the formation of new connections or rather occurs along the original tracts with the original stimulus memory remaining entirely unconscious and only the start and end of the process existing in that part of the mind that knows—the conscious? Animal life that was capable of reacting to its environment has probably always had an unconscious mental life which is not dissimilar to the unconscious mental life in all forms including the human today. With the development of conditioned reflexes and other mental symbols a superstructure of cognitive clarity split off from this unconscious mental bulk to form the conscious ego. Due to this clarity and the ease of using symbols for various purposes—as is shown in the function of language—our cognitive clarity tends to become more clear causing the unconscious to become less clear, at first by comparison and later in fact so.

With the capacity for the formation of conditioned reflexes or symbols established in nerve tissue we see a number of different kinds of learning possible. There is the acquisition of new sensory memories; there is the acquisition of new conditioned reflexes or symbols; there is the development and perfecting of already established symbols and there is the combination of various previously acquired symbols that probably is thought and reason. Symbol conditioning of glandular and motor responses must differ only in degree and not in kind from symbol conditioning of rational processes which take place in terms of symbols.

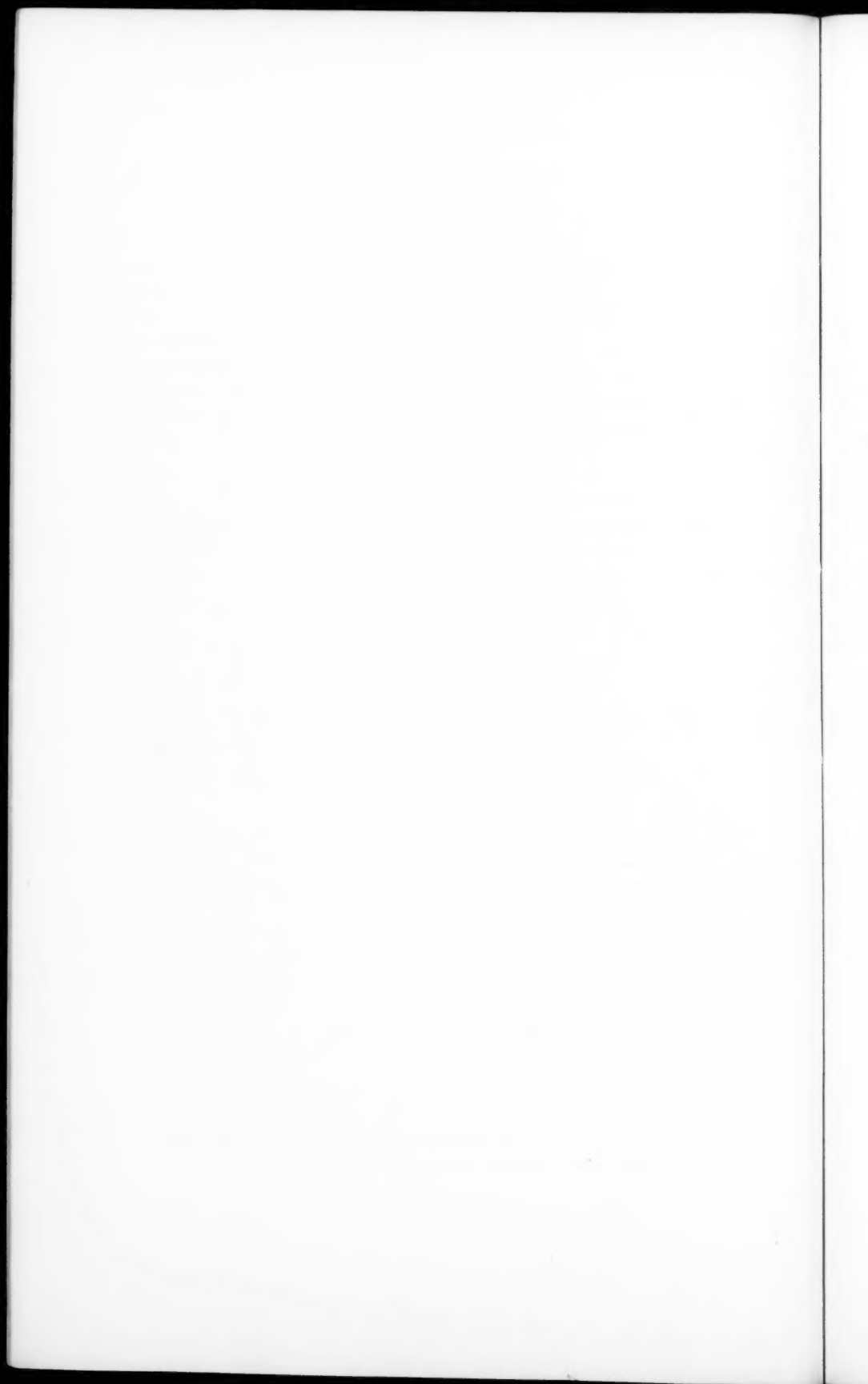
My time draws to an end or it would be fascinating to try to trace the steps of the evolution of symbol function up to the human consciousness. Undoubtedly the most efficient and workable symbols for conditioned reflexes are those of human speech. They may be learned and utilized as the coinage or medium of exchange between different minds. They can be worked over, used and handled as substitutes for the underlying ideas we mean to portray and their very inadequacy proves that they are but substitutes. But they

are the coinage of thought and as such the main content of consciousness.

Consciousness then is a relative term used to describe states of mental clarity. Animals incapable of developing conditioned reflexes or symbols are probably incapable of consciousness. The greater any animal's capacity to develop symbols, the more nearly conscious are his mental states. The most efficient and workable symbols are the symbols of speech and language and the animal that has command of these is the one that is capable of the greatest consciousness and for the same reason the one whose more primitive unconscious is more elaborate and replete with potentialities for trouble.

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PRESIDENTIAL ADDRESS: AMERICAN PSYCHOPATHOLOGICAL ASSOCIATION.*

By ROSS McCLURE CHAPMAN, M. D., TOWSON, MD.

I believe that the president of this Association should always be selected from those members who are essentially psychopathologists and while my interests are now and have always been deeply engaged by psychopathology force of circumstance has prevented the proper application of the phrase "essentially a psychopathologist" to me. The fact, however, that I am standing in this place to-day does not in the slightest degree appall me. The fault is not mine. I was indeed not present at the meeting last year that blundered and with a certain feeling of satisfaction that after this experience the Association will probably not make such a mistake again, I shall proceed with what I have to say hoping to make as much of my illicit opportunity as possible.

I am forced into certain channels by the fact that one appearing before this distinguished body should write about something he knows about from his own experience and as the address has taken form it has become more and more a criticism of North American psychiatry from the point of view of its failure to recognize some of its opportunities and its lack of intelligence in acting on the opportunities it recognizes.

The approach to this criticism, which I hope will be constructive, seems quite natural, for the problems of the modern psychiatric hospital, public or private, or those of its medical staff are the problems of psychiatry in general.

The first of these problems that presents itself is that for which the hospital was founded; namely, the care and treatment of its patients, most of them obviously quite sick else they would not be there. There is provided for the care and treatment of its patients a group of physicians which should invariably be much more adequate both as to quality and number. There is also provided a larger group of nurses and attendants some few of whom are en-

* Given at the joint meeting of the Association with The American Psychiatric Association, Minneapolis, Minn., June 8, 1928.

dowed with the requisite qualities of personality plus experience and trained to deal intelligently with an occasional patient of the many entrusted to their care for whom something might be done. On their behalf it should be added that they are usually insufficiently instructed as to the vital needs of the individual patient the course of whose illness is often so sadly dependent on them. Additional personnel who come in contact with these most delicate mental imbalances include dietitians, social workers, physiotherapists, student nurses, occupational aides, and finally maids and porters who are almost as capable as their betters of effectually wrecking a tendency to recover.

It is not necessary to enlarge before this audience on the needs of the recoverable patient or his qualities, logically enough acquired, of suspiciousness, supersensitiveness, capacity for being misunderstood, for clever acting, his shifts of protective coloring, and so forth. We have all of us who study our patients at all carefully seen the serious effects on an individual of even the carelessly spoken word, of the indifferent attitude, of the absent-minded smile to say nothing of the devastating effects of grave blunders altogether too common on the part of both physicians and nurses. We must admit, if we acknowledge the truth, that for the task of adequate care and treatment our hospitals are sadly lacking in personnel from the point of view both of quality and number.

Second: Research of some kind must be carried on. Third: The hospital must maintain its contacts and participate in the affairs of some of the local, state and national medical societies. Fourth: There is a steadily growing obligation to the community where it exists. The hospital must have its outpatient department and a state hospital may conduct several clinics in outlying towns in its district. The medical staff is called on to dispense information and advice to welfare societies, church and parent-teacher associations and clubs of all kinds having the community welfare at heart. It is properly the local center for mental hygiene activity, clinical and educational, and should be interested in the state or provincial program.

Fifth: In the educational field, in these days when the importance of healthy personality development and child guidance has begun to be felt outside the hospital itself its influence must touch the local schools. If there is a medical college in the vicinity one

or more members of the staff are usually called to the class room or dispensary. And if the city or town where the hospital is situated happens to be the home of a university or is highly cultured the staff physician finds himself frequently trying to collect his often scattered wits so that he may express intelligently that which psychiatry may offer to social psychology, ethics, religion, sociology, education and what not. Sixth: In all the courts—while somewhat an object of suspicion—he is called upon for his opinion as to this or that.

The interests then of the modern psychiatric hospital are fairly well scattered, and inasmuch as psychiatry the country over not always but usually may be said to be best practised by psychiatrists and as most psychiatrists today are actually working in hospitals more or less as I have described or have hospital connections the step from hospital interests to the general interests of American psychiatry does not seem a long one.

The interests of psychiatry in Canada and the United States are dreadfully scattered, its burdens are constantly growing greater, its obligations heavier. Its performance is superficial. It is all very well to present alibis, or, if the term be too harsh, to offer explanations. Why are there too few psychiatrists? Why is the average medical graduate more interested in other branches? Why are the curricula of our medical colleges so arranged that psychiatry is not presented to the student in a way to attract him? Surely we who are working in the field know there is no branch of medicine more interesting. Why does it stand so forlornly alone? Why does psychiatry have no recognized place in a Congress of Medicine? Why is it no more than a name in the American Medical Association? Has it produced nothing of value in medicine? Has it no sufficient place of its own in medicine, save to care for the psychotic for the benefit of society? Has it no peculiar or most important problems of its own in the field of public health?

Perhaps we permit the important but somewhat grinding custodial aspect of our activities to smother us. Perhaps in spite of the high-sounding phrases we emit occasionally, we are only half convinced ourselves that psychiatry should be a living, virile force in medicine. I do not believe the latter. I am inclined to think that psychiatry is timid, that it has not discovered its own strength or rather sensing it, is afraid of what may happen if it uses it.

Psychiatry has not grown up. It is adolescent. It still permits indifference and even jeers and rebuffs at the hands of the older boys even if they be not one whit bigger. Some day it will undoubtedly get angry, break a few heads and then beginning to discover itself will pass through the well known stages of inflation and deflation, always learning, until it reaches adulthood and the honorable company in which it belongs. But at present it seems to me that its behavior is—shall we say somewhat ignominious for it is being led onto the real stage of human affairs by gentle words and cajolings and is being pushed or nudged quietly from behind for the most part by those not of the medical family. In the meanwhile surgery dips boldly into the psychiatric dish and medicine does the same and neither knows that it is the psychiatric dish that has been lying around and neither knows half the time that they have burned their fingers.

Let us for a moment take stock of our strength. We have our great teachers, clinicians, research workers, and the best of hospital administrators. We have one of the oldest and best of medical journals. As to clinical material the hospital beds alone for patients suffering from mental disease in the United States are greater in number than those for all physical diseases.

When we consider the handicaps of an only slightly awakened public, of uneducated legislatures with consequent lack of adequate appropriations for carrying on our work what has been accomplished is most remarkable. Our hospitals are well ordered. Administration has progressed to a high level. Humane treatment prevails as a rule. The quality of medical care has improved. Real progress has been made in medical and nursing education. In even the most backward of our states there is a stirring of interest in what is meant by Mental Hygiene. We are properly proud of the accomplishments of our National Committee for Mental Hygiene the country over in stimulating sound legislation and in the field of public education. Really fine research and outstanding clinical work has been done and is being done here and there throughout the country. We know of much of it but I wonder how much of it we do not know about and I wonder further how many able men have had their ambitions quenched by lack of financial support, lack of personnel, the grind of necessary routine in underofficered hospitals and what is worst of all by the slow starvation of isolation.

Psychiatry has suffered for a long time and is suffering acutely to-day from lack of organization and as a result American medicine in general is a more or less unwitting sufferer. We are too scattered. There is not enough team work. I doubt that there has ever been a more loosely organized group of physicians and medical scientists having a common aim. For a department of medicine which has so much to contribute to medical education and to humanity psychiatry is almost inarticulate. Its interests are so broad, so scattered, that much of worth while endeavor here and there, lacking recognition or support, is swallowed up and lost in the welter of the valueless or impractical or again in the ever-present grind of necessary routine.

Psychiatry is facing problems of great complexity. These problems have always existed but only in comparatively recent years have their solutions appeared to some extent possible. Psychiatry has already contributed much toward pointing out possible approaches to these problems. It has much to contribute to their solutions. Its great contribution thus far lies in the complete demonstration of the fact that, usually, if we except the known organic situations, abnormal adult behavior whether it be simply peculiar or asocial, neurotic or psychotic, has its roots in faulty personality development and that faulty development of the personality is due to environmental influences during childhood and adolescence to a considerable degree.

It is obvious that this is not a new idea. "As the twig is bent so the tree is inclined" is an old saying and probably since human history began man has looked with interest on the early upbringing of his contemporaries who have made great successes or great failures. But it has been left to psychiatry to demonstrate the many ways, subtle and otherwise, in which the twig may be bent and the close connection existing between the bending of the twig and the inclination of the tree.

We do not wish to omit the contributions of the pathologist. We acknowledge the benefits derived from the painstaking work of the laboratory and at the hands of the research clinicians who have provided us with valuable instruments for mental investigation and treatment. *But* we must recognize that in addition to the difficult problems afforded by his patients each of which involves the family, social and industrial problems of others, the psychiatrist must con-

sider and answer as intelligently as possible the pertinent and increasingly wise and well formulated questions of the educator, the social psychologist, the criminologist, even the intelligent clergy and the layman who reads and thinks. *And he must answer*, else the knowledge psychiatry has acquired through the patient work of many men and women over many years will fail of its application in fields of great importance to humanity.

There are a few men and women, psychiatrists, students, keen of intellect, quick of thought, adroit of speech and favored of position scattered over the country who are doing their best and that best is heroic, to stem the tide of demands on psychiatry to-day.

The average of us lacking some one or more of these advantages (certainly not intelligence) and already fairly well buried in our professional responsibilities which are heavy enough, do a great deal of quiet thinking in our moments of leisure but the results of such thinking, undoubtedly valuable, do not find expression on the printed page nor yet from any platform—of great influence.

In order to *begin* to meet its obligations to medicine and to humanity psychiatry must take an important step forward. It must become *much better organized* and as a result effectively vocal. By *better organized* I mean *organization* in the sense of the development of a greater concert of psychiatric thought and action. Such a concert as I have mentioned can only be developed through the creation of an efficient method of gathering valuable information, of correlating such information, if desired, and of putting it into the possession of psychiatrists the country over.

The great value of a meeting such as this lies less, I believe, in the sessions themselves where one may hear worthwhile papers read, than in the interchange of ideas in informal conversations between men having similar problems. Such an opportunity for physicians specializing in mental disease comes at present only once a year and only a small proportion of them on account of their heavy responsibilities manage to attend. There should be a medium provided for the constant circulation of ideas and information and for the answering of queries. Our country is large. Distances in the United States and Canada are very great. The hospital physician in Massachusetts whose chief interest lies in administration should have an opportunity to learn how certain difficulties are overcome by a similarly situated man in California. A clinician in

Arizona or Mississippi should be able to discuss matters of common interest with a physician in Quebec or New York. Through the establishment of such a medium clinical and scientific research in our field would likewise benefit. Psychiatry at present is insular, insulated, provincial so far as practical exchange between distant groups is concerned. One of the most helpful ideas in administration that ever came to me was implanted three years ago by a hospital superintendent from Arizona or Washington—one of those states. I wish I could recall his name.

Psychiatry needs orientation as to many fields into which it has penetrated or wandered or been pushed. It should not blindly follow the lead of a gentleman from Illinois or Maryland who writes an article. It must endeavor to evaluate. Who can tell me what the contribution of psychiatry to various of the social sciences should be? What should be its practical limitations in these fields? I should not believe any one man who tried to tell me, but I should like to hear it discussed for it is a subject of engrossing interest and importance. Where is the meeting place of psychiatry and education, psychiatry and criminology, psychiatry and psychology? What can each learn from the other? These and others are subjects which psychiatry must consider. Those of you who have not read it should secure from the National Committee the eloquent tribute of one of our greatest divines, Harry Emerson Fosdick, to Thomas W. Salmon, who as a friend and adviser helped him to understand many of the problems brought to the clergyman. One of the important fields on which psychiatry should leave an impression is that of theological education. To these advisers of people in trouble and interpreters of right and wrong, the clergy, must be brought some comprehension of the sources of conflict in the emotionally disturbed.

There are many important though local psychiatric meetings, chiefly of clinical value, held during the year in various parts of the country. Some of them are addressed by distinguished foreign physicians. Such meetings should be reported in detail to the psychiatrists of the country—and the discussions of papers should not be omitted. I am sure we will agree that by the establishment of such a means of exchange of viewpoints on the part of many now without opportunities for a hearing and for the dispensing of information psychiatry and medicine generally would benefit greatly

through the arousing of interest and the development of a greater agreement of thought and action.

Organization (and this follows naturally on what I have just said) in the sense of the development of a body of medical opinion so strong as *to some degree* curb unwise propaganda, combat proposed foolish legislation, protect public hospitals from political exploitation, and assist through the giving of advice *when asked* to state and county medical societies in their efforts to diminish the activity of charlatans who operate most effectively in our field.

Organization in the sense of the development of a body of medical opinion proportionate in some degree to its responsibilities which may have finally some greater influence than psychiatry now possesses on medical and nursing education.

Organization in the financial sense. If we indeed actually represent a department of medicine, if psychiatry has the contributions to offer to other departments including preventive medicine and public health that we have for years maintained, then financial organization of a proper kind should not be too difficult.

General education, medical and nursing education, mental hygiene including child guidance activities are involved. There are sufficient grounds for the development of a rational program which might well be laid before either philanthropic individuals of vision or before some one of the great foundations. Such a program for better psychiatric organization should be well thought out and presented and if rationally conceived it should find a respectful hearing. Psychiatric research should be endowed. Additional fellowships to those now available should be provided for young men and women with proper education and experience, who seek to enter the field of clinical research. Psychiatry must let it be known through a more effective and forceful behavior that it is a field of interest and opportunity unequalled to-day in medicine.

It is the American Psychiatric Association that must shoulder the responsibility of rendering American psychiatry better integrated and more clearly articulate. Its interests are general in character. In its far flung membership of over twelve hundred are found the best of our clinicians, research workers and hospital administrators and I venture to stress the importance of the administrative group without in the least disparaging the others for without their sympathetic interest in clinical and research activities and the prac-

tical assistance of the medical superintendents of our hospitals psychiatry would not have advanced to a point anywhere near its present place. There is no group of physicians on whom psychiatric advance in all its phases depends more to-day.

Such organization as general psychiatry has to-day in this country and Canada centers in the American Psychiatric Association. Its annual four-day meetings bring together physicians from one end of the country to the other. Its membership is practically inclusive of that of other national societies of more specialized interests but whose streams are parallel. There is a gratifyingly healthy tendency toward the joining of those streams with the main river of psychiatric advance without loss of purpose or prestige. The memorable address of Dr. William A. White three years ago, as president of the American Psychiatric Association, in which he advocated a Congress of Psychiatry in the name of that Association, bids fair to accomplish its purpose. It is obvious that such a unity of parallel and identical interests would add immeasurably to the force of constructive psychiatric endeavor.

To the American Psychiatric Association then we must look for the chief support for any program for the benefit of psychiatry and if the project be really worthy that support will be given, I have no doubt. Such are the traditions and history of the Association.

I approach with some diffidence the matter of what should actually be done as the beginning of a program for the strengthening of psychiatry as a force in American medicine. As ever the first requisite is money. In this connection it should be remembered that the American Psychiatric Association is incorporated and thereby empowered to receive gifts and administer funds entrusted to it. The suggestion naturally follows that a committee of ways and means be appointed to duly consider the securing of financial support for certain specific purposes. The chief purpose seems to me to properly be at this time the establishment of a permanent headquarters for the American Psychiatric Association to be in charge of a full time secretary whose duties should include:

1. The editing of a weekly or bimonthly periodical which would in no way encroach on the field of the JOURNAL, but which would be informative in the administrative field and contain in its clinical and research sections comment and discussion. Articles in the

JOURNAL or appearing in other publications might in these columns be criticized with freedom by members of the Association, the one requisite being the sincerity of the contributor. Discussion should be provoked. It should provide in so far as possible the advantages of an open forum with an opportunity for the author if he wishes to reply to his critics. There should be a column for questions and sufficient space for answers of a reasonably concise sort. Of great importance should be the section in which the more important papers given in various society meetings are reported together with the discussion in detail. The program, or the part selected, to be reported by an expert stenographer, a member of the secretary's staff if the meeting is not at too great a distance, or by a similar stenographer employed by the society concerned and paid by headquarters, if the meeting is too far away. It should be realized that some papers not fully developed might be presented before a local society and be reported in abstract in such form as not to interfere with ultimate publication, in full. The Bulletin should be furnished in advance with the dates of all psychiatric meetings in all states, including the special medical meetings of hospital staffs, with the medical or scientific programs and with the names of the contributors, for publication. The Bulletin should be furnished without charge to all members of the Association.

2. Maintenance of contact between headquarters and all state hospitals for mental diseases in every state. The medical superintendents of such hospitals should be encouraged to use the central office for discussion of their special problems, in confidence, if that be their wish. The experience of similar institutions in other states in like matters would be drawn upon in the formulation of replies. I hesitate to express an opinion as to how valuable such a central bureau of information would be but I know of my own experience the problems of both public and private hospitals and, if properly handled, it would seem that it might be of very great help indeed. It would be of help probably to someone at the present moment to learn from his friends who have had experience their views as to the comparative virtues of linoleum set in cement as a flooring and various types of mastic. There are some medical superintendents I should think who would like to find out how cafeteria service for patients has actually worked out in the experience of others—economically and otherwise and practically for the benefit of the

patient. Questions as to the experience of others in certain aspects of hospital policy, as to legislative difficulties, as to community relationships, as to clinical viewpoint and matters of treatment, would certainly arouse helpful discussion. What is the consensus of opinion as to the usefulness of physiotherapy in its various forms? Where can able physicians be found to meet a shortage in the medical staff? What is the experience of various states in persuading legislatures and governors to pay adequate salaries and what have been the lessons learned? Where may a promising young physician, a junior physician in a hospital, go for special clinical study for the benefit of his hospital and how is he to go when there is no state provision for financing him and how get him back and keep him for a while when he has once gone? What is the comparative usefulness in various hospitals of social service? The questions for discussion are endless.

The Executive Secretary having such responsibility obviously must be an "all round" man, well educated and with an exceptional background of experience. Needless to say, he should have diplomatic qualities. Preferably a psychiatrist, he *might* be a nonmedical scientist with a special leaning toward social problems. In any event he must have the benefit of the advice of an advisory board and keep in close contact with the editorial board of the *JOURNAL* and with the officers and council of the Association. He must be able to talk. He must be a person of standing in the medical-scientific world and he must both be well paid and given a sufficient office organization. Such duties as the Association might approve of those performed by the present secretary would be transferred to him.

In this address there is not the slightest implication intended that psychiatry in this country and Canada has deteriorated or that it is in need of rehabilitation in any respect. On the other hand, there has been a slow but sturdy growth of a fine clinical attitude, of sound administrative method, of interest in research along some few of many necessary lines. I believe, emphatically however, that the time has come to rouse and take stock of the whole situation and if we do that it will be found that the rather brusque indictment made earlier is not overdrawn—namely, that we are failing to recognize some of our opportunities, more than that, some of our

obligations, and that we are showing decided lack of intelligence in acting on many of the opportunities and obligations we recognize.

Psychiatry should begin to develop a better orientation ; it should begin to wonder what its boundaries are and begin to see more clearly what contributions it can make to the solution of social problems. If we do not undertake before long a rational study of our broadening responsibilities and develop capacity to act on our findings, it will inevitably follow that others less qualified will undertake the work that we as physicians should do. But preliminary to this there must be brought to psychiatric thought and effort greater concert and consequently greater force, and this cannot be brought to pass without provision for initial organization.

A CONSIDERATION OF THE ACUTE PSYCHOSES AS REACTION TYPES.*

By CHARLES R. BALL, M. D., ST. PAUL, MINN.

It is with considerable trepidation I present this paper before this audience because in it I realize that I am touching on much debatable ground. When I think of our esteemed President on our right and our experienced Secretary on our left, both of them bulwarks of modern, conservative psychiatric thought, I at the same time feel I have to face this audience of experienced psychiatric Missourians, so to speak. About the only thing I can think of at just this time is the old saying that fools rush in where angels fear to tread.

Introduction.—In the beginning of our practice in psychiatry, the subject was not so complicated as it is now. In diagnosis we had three types to differentiate; the circular, adolescent and paranoid. It was a case of circular insanity if there was a history of a previous attack, adolescent if the attack occurred during the adolescent years and paranoid when the patients imagined some one had it "in for them."

The Kraepelin Era.—Then came what might be called the Kraepelin Era which was principally a period of classification and description. During this period much was contributed to the recognition of clinical types but little progress seems to have been made in the way of a better conception of causes.

Along with hysteria and epilepsy we were inclined to consider these different psychotic states as diseases *per se*, entities in themselves.

The Reaction Types.—We have now given up the idea of hysteria as a disease *sui generis*. We designate it as a symptom complex, and better still, yes, much better because it contributes to our understanding, and suggests something more basic and fundamental, a reaction's type, taking place in a pre-disposed individual,

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that is, an individual with what has been well defined as "The Hysterical Constitution."¹

The term, "reaction's type," in our opinion, marks a new era in functional nervous and mental states. It is a transition from the era of description and differentiation to that of understanding.

In speaking of the reaction type of the psycho-physical organism,² W. Jacobi and K. Kolle, in an article on "Observation in the Schizophrenic Reaction Types," say: "We think here of some of the older writings of Gaupp and Hoche, both of whom speak of hysterical and paranoid reaction types."

Bonhoeffer studied a series of psychoses which occurred as a sequence of physical disease, such as infections and intoxications. He came to the conclusion that the mental syndromes found here, no matter what the nature of the infection, were quite similar, as, for example, an amentia following typhoid was quite like one after a pneumonia. A Korsakoff's syndrome, whether as the result of alcohol or in the course of an encephalitis, had a somewhat similar symptomology. He also said the clinical pictures presented in these conditions practically never occurred in the so-called exogenous types, and when they did occur, were to be regarded as endogenous complications.

Homonomous and Heteronomous.—By the so-called endogenous types he referred to the manic-depressive and schizophrenic psychotic conditions.

This work of Bonhoeffer's started a tremendous discussion in the German literature which is still raging as to what was, strictly speaking, exogenous and endogenous in mental states. Kleist has suggested instead of the two terms just mentioned, that we speak of these two different clinical syndromes as homonomous and heteronomous, using both these terms in their literal sense.

We realize quite well that a differential diagnosis, especially between the manic-depressive forms and the heteronomous or symptomatic types of the psychoses is often impossible. Kraepelin, in discussing the subject of amentia which he classifies under the name of "Akute Vorworenheit," says in many of his amentia cases later on he has had to revise his diagnosis to that of the manic-depressive form. Bonhoeffer himself has said that a distinction between these types can only be made when there is a definite history of some infection. This means of differentiation, in our opin-

ion, is also not free from objection because we well know that a physical illness may act as the exciting cause of the homonomous type.

The Amnesic Symptom-Complex.—In reviewing our cases in the preparation of this article where we could be reasonably sure of their heteronomous nature, in addition to the Korsakoff's syndrome, what is called the amnesic symptom-complex seems a very valuable differentiating factor. We all know that in the heteronomous forms, days, weeks, and sometimes months are a blank to the patients. They awake from their psychotic state much like Rip Van Winkle did from his sleep. Twenty years is as but a night and the recognition of this lapse of time by the patient is slow and startling. Like Rip, when he tried to whistle back his dog, Schneider, it takes them some time to appreciate what has occurred during their unconsciousness. On the other hand, in the homonomous psychoses, even though the course is a stormy one, the patients are apt to remember all the events which have transpired and even explain the reason for much of their behavior during the attack.

In considering the endogenous psychotic conditions as reaction's types, we must naturally make, as our foundation, the pre-disposing constitution just as we have spoken of the hysterical constitution as the background for hysterical states. It is in the study of our clinical histories that we perhaps secure our best information in regard to the range of the reaction's type in the pre-disposing constitution as the following case will illustrate.

The mother of an epileptic girl said there was no history of any one in the family on either side who ever had epilepsy. In the course of further questioning, it was brought out that she herself had hay fever and had had it ever since she was 18 years old, also that a sister was subject to both hay fever and hay asthma. We remember reading numerous articles based on statistics regarding the inheritance of epilepsy as well as the psychoses and because of the failure to find cases of either epilepsy or psychoses in the family history, the conclusion was formed that epileptics seldom transmitted their affliction to their offspring and consequently epilepsy was not an inheritable condition. We agree with this conclusion so far as the epilepsy itself, or insanity either, for that matter, is concerned, but this only states a very small part of the truth. The

really important thing in all these conditions, whose genesis is on a nervous basis, is that the susceptible nervous system, the "Anlage," as the Germans call it, without which there would have been no epilepsy or hay fever, was the inheritable and constitutional condition, reacting differently in mother and daughter, but both to be regarded as constitutional reaction types of nervous origin. Considering the "anlage" as a susceptibility to diverse reaction types helps us to establish a relationship between widely different clinical syndromes such as epilepsy, the neuroses, the psychoses, hay fever, asthma, hysteria, and various skin and mucous manifestations, such as urticarias, eczemas, and even ulcers of the gastrointestinal tract, etc.

It might not be out of place to call attention here to the fact that the nervous system, skin, and mucous membranes take their origin from the same embryological layer, the epiblast.

The "Anlage."—What do we understand the nature of this "anlage" to be? It is not confined to nervous and mental disturbances alone. We see its reactions in the mucous membranes of the nose and throat, the bronchioles of the lungs, the mucous enteritis of the intestines and various urticarial and eczematous disturbances of the skin, as well as in that peculiar phenomenon called angioneurotic oedema; in fact, in that ancient and much-treasured symptom, the globus hystericus, as well as in all those symptoms we have been telling our nervous patients to go home and forget about, because our stethoscopes and other methods of examination did not reveal to us the workings of autonomic nervous system.

We have a patient now under our observation who has a most distressing mucous enteritis, hay fever and asthma in season, urticaria at times, hives on occasion, eczema, and also migraine headaches. We have taken this patient's father through two attacks of a simple melancholia and we do not feel that we are too broad-minded when we make a somewhat similar "anlage" with different localizations in the reactions as the pre-disposing causal factor. A more careful consideration of the relationship between these various conditions should aid us much, both in our knowledge of the subject of heredity, and of the broad scope of the constitutional nervous "anlage."

Psychic Mechanisms Fixed.—An urticaria might come from eating strawberries, shell fish, nervous strain, but when it does

come in the same individual the reaction is practically the same except for the fact that there is a range of degree which seems fixed within certain limits and outside of which this reaction, in this individual, does not usually go. Kraepelin³ has said that the numerous expression types of insanity are determined once for all by fixed mechanisms which are not limited by any certain physical pathological process but make their appearance in like form quite independent of the cause. He compares the various psychotic symptoms with the different registers of an organ which are put into play according to the intensity and the extent of the force. So with the reaction types, the expression of them in the same person because of these fixed mechanisms has the same characteristic qualities, no matter what the causes are which have produced them.

We are constantly impressed with the inclination of people, both when well and sick, to do the same things over and over again. We may use, as an illustration of this statement, a manic-depressive patient whom we have had the opportunity of observing through two of her attacks. In the beginning of each one of these, when she felt her first symptoms, she did each time the same identical thing. She took an extended trip with the idea that it would benefit her. During the attacks her symptoms were practically the same even to the same expressions. She "had ruined her head, it was done by her wrong way of thinking, she had been wicked and mean all her life, nobody could do anything for her, it was all her own fault."

In this case, if the psychotic symptoms had been a second attack of hives from eating shell fish, the reactions in the brain cells each time, judging from the symptoms, could not have been more similar than the hives reaction in the skin. It would seem a reasonable explanation here to consider that the "anlage," the susceptibility, like the skin to the hives, existed in certain brain mechanisms, and, outside of these susceptible systems, brain function continued quite undisturbed.

Localization.—Why is a manic-depressive patient always a manic-depressive and a schizophrenic the same? These questions are now pressing for an answer in psychiatric thought. We believe that personality has much to do with the character of symp-

toms in the psychoses, that the symptoms are merely abnormal reactions of the brain mechanisms, "the registers of the organ" as it were. We realize that cycloid and schizoid personalities are contrasting types but we do not feel that this contrast in personality is anything like as great as the difference in symptoms between a case of so-called melancholia and one of catatonia. Personality alone could not account for such a wide divergence in the clinical picture.

As evidence of the fact that one needs something more than peculiarities of personality to explain a psychosis, we may point to the psychopathic personalities who do not always, by any means, develop insanity however much at times we might wish that such was the case. In the case of the manic-depressive type which we have just cited, with practically the same symptoms in each attack, the natural inference would be that the same brain mechanisms were affected each time. Kleist assumes that we have a reaction of certain brain systems in the schizophrenic forms. If we make this assumption for the schizophrenic forms, are we not inconsistent if we do not apply the same hypothesis for the manic-depressive states?

Since our experience with the character changes and other nervous sequelæ in encephalitis, there has been some inclination to compare the syndromes in these cases with those occurring in schizophrenia and to reason by analogy that the localization of both processes in the brain are much the same. Analogical reasoning has not been very popular in medical science but we can see no good reason why a fact should not be considered a fact, no matter whether it is statistical, pathological, or the result of an analogical comparison.

We saw a young man in our over-seas service who, on first impression, seemed to be a well-developed case of dementia præcox. His symptoms were typical, with both catatonic and negativistic features; staring into space, laughing foolishly to himself, and doing most of the other things that patients of this type usually do. Later on, we obtained the history from the hospital where he was first taken sick of an acute illness with encephalitic symptoms. This patient died and post-mortem findings showed marked changes macroscopically in the basal ganglia. No microscopic examination

was made. In those cases of encephalitis, where personality changes occur, we can think of no one word which describes their behavior so well as the term schizophrenic. Like so many schizophrenics, the contrast as measured by their actual mental capacity in qualities of memory, perception, orientation, etc., which we are inclined especially to attribute to cortical origin,⁴ is quite striking when compared with their capacity in behavior. We are not unmindful of the fact that an encephalitic patient, may have an involvement of the cortex. Many of them do, but when they do, their symptoms during the acute stage are entirely different from so many encephalitics who later develop the Parkinsonian syndrome as a result of brain stem lesions. In the Parkinsonian sequelae, in many instances, we think it well worth calling attention to, it is difficult to get any history of either mental or nervous symptoms at the time of the initial attack. The diagnosis at the time is usually that of the "flu" or la grippe and sometimes the symptoms are so mild that it is not possible to obtain any history of the onset at all. When the encephalitis in the beginning, however, involves the brain cortex, we have then the symptoms of a symptomatic psychosis and the onset is striking.

During the preparation of this article we have observed, with special interest, one of our catatonic patients—her mask-like features, her rigid fixed postures, her tendency to lean forward as she sits and walks, and even, oftentimes, the typical pill-rolling position of her thumb and forefinger so characteristic of the Parkinsonian forms. The interesting question here is whether an analogical deduction is justifiable, since these Parkinsonian types in encephalitis have their brain pathology chiefly in the brain stem and basal ganglia, of assuming, because of this syndrome similarity, that our catatonic and schizophrenic forms have similar anatomical localizations.

Reichert, Kulenkampff, and others are of the opinion that the deep centers of the basal ganglia are the seat of personality. In the mid-brain exists the centers of life, the vital centers of the entire psycho-physical organism. Here is the center of the vegetative nervous system. This is the point of localization of our primitive desires, impulses, energies, and emotions,⁵ while the capacity for perception, memory, and the association functions are to be found in the brain cortex.⁶ Both our encephalitis experiences of

recent years and our increasing knowledge of the functions of the basal ganglia have given us occasion to believe that the physical basis of psychic disturbances exist not only in the cortex but also in the subcortical ganglia as well.

Character and Physical Development.—One of the problems which is constantly coming up in our work in the psychoses is concerning the rôle which personality plays.

Should it be regarded as a causal factor?

Does it have an important bearing in determining the type of the psychoses?

Is there a relationship between it and physical development as Kretschmer* and his followers believe?

In our opinion, if we were to deny any relationship between personality and form, we would have to deny the existence of the scheme of adaptation in the plan of creation recognized everywhere in nature. We need only to point to the Biblical lion and lamb to furnish an illustration of our meaning. Our consciousness of this is universal and we make application of it daily in all our affairs.

We distinguish at once in our personal contacts the difference between the individual who comes swinging down the center of the walk, head up, shoulders back, in his very manner issuing a challenge to the world of "gangway," and one who comes slipping and edging along, pussy-footing it as if he wished to apologize for his existence. We never picture the typical landlord as a weazened, half-starved, little creature, but rather as a florid individual of broad expanse.

In our patients with homonomous psychoses, we are beginning to appreciate more and more the value of a classification of the physical types according to Kretschmer, whether they are athletic, diplastic, asthenic, leptosom, or pyknic in their physical development. We are inclined to think patients who are plainly leptosom or diplastic in physical form are constitutionally schizoid in personality and if they develop a psychosis have a rather bad prognosis.

Kretschmer says that schizophrenia should be regarded as an acute angle, an increased intensity of a normal personality. Bleuler also speaks of a psychopathic deviation in personality as a predisposition to the schizophrenic process. Birnbaum, in an article on personality and psychosis, first states two fundamental argu-

ments against the existence of a causal relationship. The first one is that a psychosis depends on a biological process, which in turn is dependent on biological laws and these are not subject to the personal equation. One might add, also, that personality also depends on a biological process. In the second place, the normal personality undergoes a change because of the psychotic process, and so its influence as a causal factor is lost. As an answer to these contentions, Birnbaum says that even in biologically dependent processes, psychic influences in the nature of emotions play their part. He finds in almost all the psychoses a comprehensive group of psychological secondary symptoms which constitute the psychic reactions of personality in the psychotic state.

This may be observed especially well in the manic-depressive groups. So often in these cases, with delusions of wrong doing, a sense of personal guilt and of unworthiness, their symptoms represent only an intensification of normal qualities.

Birnbaum further states that the many-sidedness of this psychological relationship is influenced by numerous factors and his illustration only brings up again the complexities of psychiatric problems. A delusion of jealousy might originate out of a naturally jealous nature or occur as the effect of the consciousness of a sexual inferiority. It need not necessarily be a sexual inferiority in our opinion, not being a Freudian. The consciousness of any other inferiority would serve equally as well.

The Remission.—Even though we are willing to accept Kretschmer's conceptions concerning personality and physical development, it is evident they should be considered only in a causal sense and therefore as pre-disposing and constitutional factors.

There is still something more which is needed to explain the various clinical pictures which the acute psychoses present. For instance, the theory of character and physical development will not explain a remission. It does not help us to understand why an acute mania for a period of a few hours may manifest a perfectly lucid and rational interval and then suddenly relapse into their former maniacal state again.

If we turn to pathology in our search for something more concrete, here again, to use a golf expression, "We seem to be in the rough."

Pathological.—W. Jacobi and K. Kolle,² in the articles previously referred to, say:

In the unexpectedly far-reaching extent of the topical organization of the brain cortex, we recognize the conditions which explain the complexity of psychic life. Further progress in myelo and architectonic fields promises to solve the relationship between the brain and the events of consciousness. The individual cortical fields will be scanned in order to see if personality characteristics may be recognizable in cortical peculiarities.

No doubt the work of O. and C. Voght and their colleagues who are now endeavoring to make intelligible the various transition stages between the normal, abnormal, and pathological reactions in the psychic brain areas will, in the future, add greatly to our knowledge in this direction. We may sometime expect to learn by means of the subtle color staining variations in cortical tissues the function of the various layers and even be able to determine about the nature and localization of their psychic complexes from the variation in the thickness of the layers and the number, shape, size, and type of the cells.

That pathology has contributed so little thus far to our knowledge of the so-called functional psychoses may be regarded as another evidence of their reactive nature.

There would probably be no permanent changes in tissues affected by an angio-neurotic œdema or in lung tissues reacting in hay asthma, provided these conditions did not occur too frequently or last long enough to produce degenerations through pressure and venous congestion, in this way setting up a chronic condition. It is difficult to differentiate between the pathological findings already reported in dementia præcox cases and say that this is a process effect pathognomonic of the disease and that is secondary degeneration as the result of long-continued and repeated reactions or even ante-mortem causes. The alterations in brain pathology thus far reported in cases of dementia præcox may be satisfactorily accounted for as the result of such reactions.

We will require much better evidence than is yet available before we are willing to think of dementia præcox as a germ disease, subject to the exacerbations and remissions, comparable in this respect with general paralysis and multiple sclerosis, as is being suggested at present by some observers.

Griesinger and Wernicke.—What does the Griesinger Postulate, "Geistes Krankheiten sind Gehirn Krankheiten," in the light of our present-day conceptions signify? Shall we see the problem as Wernicke did from the side of brain pathology entirely? His study of the aphasia doctrine formed the starting point of his psychiatric thinking. Out of this teaching originated the theory of the psychic lesion, a localizable, recognizable spot for the constellation and complex. Assuming that these localizable areas have already been demonstrated, have we then proven the Griesinger contention?

Rudolph Thiele, in discussing this whole subject, says, "In general, modern psychiatry has turned away from the Griesinger declaration and the conception of the disturbance in the function of one organ alone and come to regard it rather in the light of the etiology, course, and termination as a constitutional and systemic process."

The terms, "exogen" and "endogen," in themselves, would suggest this broader conception. It is pertinent to say here that what is true concerning this conception of the importance of constitutional and systemic functioning in psychotic conditions also applies with equal force to other affections. A well-known gynecologist said the other day it was a great mistake to treat all leucorrhoeas as caused by local conditions, that many of them were properly constitutional in origin. The so-called rhinitis nervosa is another illustration of the local manifestation of a constitutional condition.

We would not be willing to attribute to the brain itself entirely the very distinctive changes which we note in personality during adolescence or the also equally characteristic ones after the climacteric. A process originating entirely in the brain does not explain why so many cases of schizophrenia develop during the adolescent period, or the occurrence of a sudden and complete remission in a case of paresis with widespread cortical pathology.

Clinical Symptoms.—A study of clinical symptoms gives us plainly evidence of a systemic involvement in our psychotic patients. The coated tongue, the loss of appetite, the intestinal atony and general physical discomfort even to the extent of physical pain testify to this. We have often thought we could keep just as good a check on the course of an agitated melancholia by observing the

changes in the appearance of their tongue as we could on that of a case of typhoid fever. If we will contrast the fairly normal psychic function in many cases in brains with gross lesions, tumors involving whole lobes, including even the frontal, and at the same time the flightiness and delirium which occur in some individuals as a result of even moderate temperature disturbances we can appreciate better the very important rôle which susceptibility and systemic influences play when compared with gross brain pathology in psychotic conditions.

We have not emphasized sufficiently the importance of these two factors in the etiology of the acute psychoses in general and especially of the homonomous types in our opinion.

We often discuss the endocrine system and its importance in the genesis of psychotic states. In speaking of the endocrines as causative factors, no doubt we are getting warm but only warm, as both the impunity with which the surgeon, without causing psychotic disturbances, is able to remove thyroids and ovaries, as well as the absence of any definite consistent pathology of these organs⁷ in patients with the psychoses show.

The oftentimes suddenness of onset of an acute psychosis or a delirious state is very good evidence that the pathology of local organs, such as the sex glands or the thyroid, is an insufficient cause. The rapidity of onset as well as the suddenness of change in clinical symptoms would strongly suggest the action of a central mechanism such as the autonomic system with its centers in the mid-brain. This central autonomic mechanism is able to change almost instantly the chemistry of the entire body from a normal state to that of an abnormal and toxic one. We should consider the endocrines, of course, as important but only as their function influences the action of this central mechanism.

It is the reaction of a susceptible skin to this central autonomic mechanism which causes a sudden outbreak of hives. We observe the same reaction in a bronchial asthma of the nervous type. It is now stated that epileptic attacks, because of their sudden and severe onset, could only be brought about in this way.

In conclusion, we would like to suggest first the acute psychoses as reaction types, the reactions occurring on the constitutional basis of the susceptibility of certain brain mechanisms to systemic toxic

conditions—these systemic, toxic conditions originating in a disturbance of function in an abnormally sensitive central autonomic mechanism.

Second, personality is to be regarded only as influencing the type of psychosis.

Third, the rôle inheritance plays in mental and nervous affections should not be judged entirely from nervous manifestations, but allergic reactions in general should receive more consideration because of their very probable nervous origin.

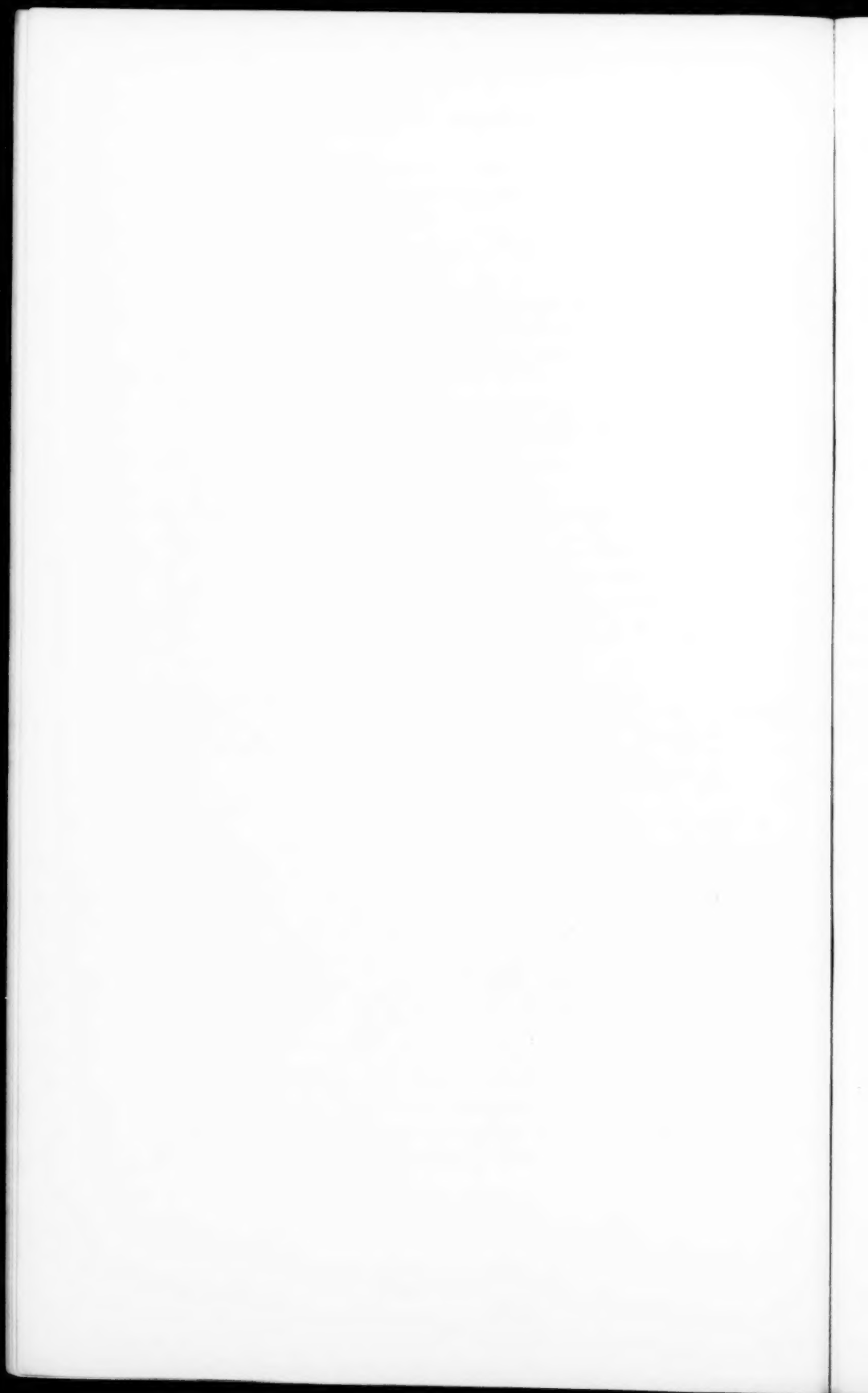
Fourth, the exciting cause may be, of course, either psychic, physical, or a combination of both these factors.

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DISCUSSION.

PRESIDENT MEYER.—This very comprehensive paper is now open for discussion. Is there any discussion? Are there any questions? I take it that it is a problem concerning which undoubtedly there is a great deal of material to be collected, and a great deal of occasion for consideration, but undoubtedly there is also a great deal of difficulty in coming to the focus of any offhand discussion. Hence, I should say the explanation of the fact that we accept the paper of Dr. Ball as a source of stimulation, but not with the possibility or the abundance of discussion that the topic might well deserve.



PSYCHOTIC REACTION IN THE PSYCHOPATH.*

By G. E. PARTRIDGE, Ph. D.

The main interest in this study was in attempting to discern whether psychopaths—a class of mentally deviated persons who have shown early in life a certain syndrome which we have previously attempted to define—have definite psychotic reactions; and, if so, whether these psychotic reactions show any feature characteristic of the class; what the prevailing type or types of these reactions are; whether there are observable relations between the degrees or types of the psychopathic adjustment and the type of the psychotic reaction.

The psychopath in his pure form is notoriously difficult to study by such psychological methods as require the cooperation of the subject in a sincere search for the causes of his condition. He seldom desires to know them, has usually developed such powers of rationalization about himself that he is a poor coadjutor in any such work. If one is not to be wholly baffled in the investigation of these elusive folk who thwart the free employment of the only method that promises much towards the real understanding of any mental deviation, one must look about for flank approaches. In this case the question arises whether the psychopath who falls severally ill mentally may not provide us with some opportunities. Some recent experiences seem to indicate that this may be true. In one case a woman who, from early childhood, has displayed a marked tendency towards the kind of maladjustment that we call psychopathic, becoming quite definitely mentally ill in the early thirties, cooperates in a prolonged psychological investigation, although unable to control emotional stress over many unsatisfied demands sufficiently to be an ideal patient. Other patients, psychopathic in adjustment, with a superposed illness which has caused them suffering, cooperate moderately well and are to no little de-

* This is the third of a series of orienting studies of psychopathic personality, the first of which was published in *THE AMERICAN JOURNAL OF PSYCHIATRY*, in May, 1928, and the second in the July number of the same journal. These studies are from the clinical research service of The Shepard and Enoch Pratt Hospital, Baltimore.

gree productive. There is, of course, still the burden of proof that a given person who becomes ill with a mental disorder having the characteristics of a well defined psychosis really is a true psychopath, and we need to know that our interesting findings are not after all the discovery of the roots of a mental malady that has little or nothing to do with a psychopathic adjustment (although this is hard to imagine). There can be no perfect protection against error in this direction. But persons who have shown unmistakable psychopathy have, it appears, fallen into true psychoses, despite the fact that the psychopathic adjustment must be regarded as a protection against some forms at least of mental illness. As a method of evading responsibility, of avoiding reactions of shame or sense of guilt, of release of tensions by the management of the environment by the well-known techniques of the psychopath: tantrums, invalidism, running away, the psychopathic development has many advantages, and it may be granted that a perfect psychopath under anything like fair sailing would never develop, let us say, a schizophrenia. Anyone who has worked much with psychopaths will readily admit that psychopathy and inaccessibility go together, but our escape from complete failure is to be found in the relativity of all concepts of psychopathological entities and conditions.

It was from the point of view which this suggests that the records of ten years of admissions in the Sheppard and Enoch Pratt Hospital were examined. The problem was to compare personalities and reactions in a representative group in which the diagnosis offered afforded reasonable grounds for concluding that there was a degree of psychopathic personality as a background or at least as the precursor of the reaction. As in a previous study, cases of chronic drug and alcohol addiction were usually included, perhaps not wisely, as may presently appear.

In all, 188 cases were listed (including the fifty that were selected for the study of non-psychotic psychopaths). Excluding these fifty cases, from the remainder 100 were selected at random as a basis for the present observations. They are cases studied in the ordinary course of clinical procedure with presumably no interest in special research of any group.

DURATION OF HOSPITALIZATION.

The average length of term of treatment of fifty cases selected at random (excluding two cases in which the time exceeded one year) was approximately two months and ten days. This brevity of stay in the hospital is to some degree a measure of the resistance of these patients to hospital life. The progress notes on the cases verify the inference that they were not "good" patients. They tend to be dissatisfied; there is much demand and protestation from them. Meagerness of the records attests their unproductiveness. Treatment of them as a class seems to have been difficult and discouraging. Finally it must be confessed that the knowledge we may get of the psychopath from clinical records of them, although not negligible, is not very satisfactory. We might go on indefinitely accumulating them without getting far into the essential problems of the psychopath.

THE MOST PSYCHOPATHIC.

With admittedly imperfect and insecure criteria of selection, a group of twenty-two cases was set apart as showing the most pronounced characteristics of the psychopathic personality. These were distributed among the reaction types as follows:

Manic-depressive	8
Schizophrenic	5
Mixed	3
Toxic	2
Unclassified and miscellaneous.....	4

It is this group which yields the body of the evidence for the main conclusions to be drawn, since it is the incidence of psychosis in the genuine or developed psychopath that is the main object of observation.

If we add to this group thirteen cases in which there was recognized a sufficiently distinct psychopathic development to warrant definite classification as psychopathic personalities, the grouping becomes:

Manic-depressive	11
Schizophrenic	8
Mixed	4
Toxic	5
Unclassified and miscellaneous.....	7

That is to say, if we include a group somewhat less distinctly psychopathic on the whole, there is some tendency for subsidence of the dominating incidence of the manic-like reaction.

CLASSIFICATION.

Diagnostic classification of the reaction types presents the usual difficulties, but the hundred selected cases may tentatively be distributed to advantage thus:

Prevailing affective reactions.....	34
Prevailing schizophrenic or paranoid.....	18
Mixed	7
Mainly toxic	26
Unclassified and miscellaneous.....	15
	<hr/>
	100

SCHIZOPHRENIC REACTIONS.

Grouping the schizophrenic-like cases, eighteen in number, we find a decided prominence of a certain inadequacy of personality, and ten of the number may be characterized as having this tendency. Inadequacy, however, is at the present time so loosely defined that to call these offhand psychopathic personalities of the inadequate type would be unprofitable. In fact, we find here only two who present the picture of shiftlessness and indolence or the selfishness and invalidism which we understand to be significant traits of the psychopathic adjustment. We find most of these schizophrenic-like outlines in persons who are described as delicate, nervous, sensitive, infantile, retiring, inferior feeling. Still, to repeat, we lack clarity here: we have no generally accepted criteria of differentiation for distinguishing categorically the inadequate psychopath or the inadequacy that is the basis of a genuinely psychopathic maladjustment from what we find as a background of later schizophrenic or psychoneurotic or depressive developments. We prefer, in the absence of such criteria, none the less, to think of the inadequate psychopath as one who adopts a technique for the satisfaction of his desires, the main feature of which is pursuit of the way of least effort. We find voluntary dependence, invalidism, sulks and attention seeking.

The five cases that follow were all included among the "most psychopathic" and therefore deserve separate consideration.

CASE XLIV.—Female, 48. There had been a gradual change of personality extending over several years, but for a long time she had been indolent, had thought of herself as always sick, felt that it was all right for others to do for her. She had always cried much but the summer before her admission to the hospital she would cry for hours without apparent cause. Six years before her admission, her husband left her. There had been increasing oddities of behavior but she adjusted fairly well until her mother died about a year later. After that she neglected her duties, attracted attention of others to her disabilities, showed oddities in manner and dress, developed ideas of reference and probably had auditory hallucinations. A few months before her admission her husband petitioned for divorce. Since then her behavior had been decidedly peculiar: she carried about many excess articles, sat in the yard with her dress open, accosted passersby. She thought her sister was constantly criticizing, that she had been infected in some way by her husband, wrote confused letters, complained of burning, throbbing and dizziness. She thought a Christian Science practitioner was trying to work a spell on her, at some time she is reported to have said that she heard voices calling her. In the hospital she showed no strangeness of behavior and was entirely cooperative. The general opinion was that it was a case of simple dementia præcox.

There is some discrepancy in the description of her personality since in one account she is depicted as having always been mild, retiring and shut in, and it is said that at puberty she was thin and nervous but not regarded as sick, while elsewhere she is spoken of as markedly psychopathic. She is said to have been a difficult child, very wilful and persistent, giving her mother much trouble. It is mentioned that she would lie on the bed and scream for a long time, was domineering and irritable. She was selfish and jealous, and all her life had a tendency to blame others. In youth she had admirers but was very fickle and inconstant. She taught school, but could not adjust well to other teachers. She married a teacher and after a year there began to be disharmony between them.

Interpretation of this case is hazardous, since the subjective evidence is largely wanting. She had shown marked dependence, and in the hospital, despite her cooperation and her insistence that she was willing to do anything anybody said (if the person were willing to help her), she seemed entirely selfish. Her chief concern seemed to have been with the idea that she had been neglected by her family, and her invalidism is the most conspicuous feature in her reaction. So far as can be understood from the records, she does not appear to have been very psychotic. The picture seems essentially that of a psychopath, who had made extraordinary efforts to direct attention to herself, and made remarkable adaptations in the effort to be relieved from responsibilities and all competition.

CASE LIX.—Female, 29. This patient, who had displayed what seems a well-developed psychopathic personality, became ill at the age of about twenty-six. She was very nervous, thought she was dying, had urges to do such things as jump in front of cars, or put knives into herself. She was at times dreamy, had crying spells, thought neighbors were against her, said she didn't know what it was all about. She appears to have recovered from this attack but had two similar episodes, and about three years later was ill again. The onset was sudden: she awoke in a trance-like state, thought the world was coming to an end, and continued to have spells lasting for two or three hours. She was noisy, cried, had delusions of persecution, thought she was to be done away with, imagined that the world would be burned up. She had burning feelings in her hands and eyes. In the hospital she seemed childish in judgment, shallow in her thinking, had a narrow range of interests, was retiring, had feelings of inferiority and guilt. She was discharged as improved after about five months, with a diagnosis of schizophrenia, but went to another hospital where in some way a diagnosis of manic-depressive, depressed, was arrived at.

The main facts in the life of the patient were these: Her mother died when she was six months old, and up to four she lived with strangers. She then returned to her father who was alcoholic. After ten a paternal aunt looked after her—a stern woman, strict, very religious, deaf—who restricted the life of the child. She was pregnant when married at twenty to a widower nine years older than herself, from whom she separated at once. Six years later she remarried. There is mention of an assault when she was fifteen, and to this she attributed much of her troubles: a man assaulted her manually, and “ruined” her. The family background was not very good. The paternal side shows saloon-keeping as the occupation, and both grandfather and father drank. A paternal uncle committed suicide at twenty-eight. The father and the grandmother “spoiled” the child and neglected her.

The child grew up with a very warped personality, as might be expected. It is said of her that she never made any serious attempt at social adjustment. She did not play with other children, was reserved, shut-in, grew up with few friends, was bashful, hard to get acquainted with, shy with men, secretive about sexual matters. She was selfish, always discontented, pleasures never satisfied her. She was vague in her conception of the future, never knew what she wanted, never had any interest in life, was pessimistic, irritable, easily angered, cried if opposed, worried, grieved, showed self-depreciation. She did not adapt to married life, did not wish children, although she was fond of them. She cared more for women than for men.

The psychopathic features in this case stand out sufficiently clearly. Particularly the insatiable demand, the unclear objective, lack of effort and of acceptance of responsibilities are psychopathic traits. But there is evidence, on the other side, of failure to achieve a well-working psychopathic adjustment. She was shut-in,

somewhat seclusive, was "afraid to unburden," worried, grieved, showed self-depreciation, does not seem therefore to have rationalized her faults and was unable to cast the burden upon the outer world as the psychopath must if he is to retain his equilibrium.

CASE LXXIII.—Male, 21. The reaction was schizophrenic. The first change from his "usual nervousness" was when he became disorderly at college, and made no preparation for examinations. Then he began to fall in love with young women, spent extravagantly, thought he had physical troubles, was restless, turned against his father and his grandfather. In the hospital he was found to have some delusions about his body, and there were ideas of reference: he thought that negro waiters rattled the dishes and looked at him. His behavior was not very satisfactory: he was bullying, was a poor sport, showed lack of consideration for the rights of others, was sullen, played mean tricks, started a fight.

There had been early signs of the development of psychopathic traits. Punishment was reacted to by terrible outbursts of temper and outraged feelings. He was restless; in school he wished he were doing something else, but he seems, despite that, to have made excellent progress. He could not stand criticism, never could assume responsibility, never had an objective in life. He disliked college. He had grown up somewhat nervous, but became robust at fifteen, and took a tremendous interest in athletics. He had a strong feeling of inferiority. The reverse side of his personality shows some more favorable qualities. His good progress in school has been mentioned. He is said to have had a "sweet disposition," was social, a favorite, had a high sense of truth, was affectionate, although he resented his father's authority, thought he was punished too much, that he was deprived by his father of things that he ought to have, that he was nagged by his father and grandfather.

The picture here is too imperfect, both as regards the psychopathic adjustment and the reaction, to allow discussion of the case to be very profitable. He was never very psychotic, and he apparently never arrived at a well working adjustment so that he could employ his technique of evading responsibility to his satisfaction. There was some question also of homosexual conflicts. He adjusted badly to men of his environment, and there were some signs of a more direct nature pointing to homosexuality.

CASE XCV.—Male, 45. Thirteen months before his admission to the hospital, he resigned a government position, thinking he was mistreated. He was then idle for a time, and lived with a woman of questionable character. He took a position as cashier and then began to develop delusions of persecution, referring to his fellow workers, to dope fiends, and to his brother-in-law. He thought the brother-in-law wished to murder him and that he

had perverse relations with his (patient's) sister. He referred to himself as a Messiah to rid the world of the dope ring. He thought his fiancée was unfaithful. There were auditory and probably visual hallucinations. He developed his delusions somewhat in reference to the environment of the hospital, but was relatively complacent to them, and appeared finally to abandon the false beliefs and to recognize them as such. The final diagnosis was schizophrenia, paranoid type.

The significant points of the history are that the family, although containing brilliant members and having prominence, was erratic. The patient complained that the father was harsh in discipline, and that he had little respect for the father, since he drank and had the reputation of running with women. His mother also was difficult for him: had tempers, beat him (or threatened to beat him) with a cowhide, was always repulsive to him. He felt that others in the family were treated better. At the same time he seems to have been indulged and to have been treated rather casually by his father.

He grew up lacking in drive towards any definite goal. He was always shiftless, always adapted at a lower social level, never obtained any position compatible with his prospects. He got on well enough with people but did not have intimate friends, had "definitely subnormal" heterosexual urge, although he was more or less promiscuous. In childhood he displayed temper, and he has tended at times to be cross and irritable. He was always finicky about food, as a child was somewhat stubborn and opinionated. He is given to the use of perfumery. He has shown a tendency to have strong dislikes for a few people. He was always moderately superstitious and at one time was a Besantist. He never gave much thought to the future. He stated that he was always backward with women and was somewhat afraid of them and it is reported in the history that there was "at least latent" homosexuality.

The warp of personality is sufficiently plain. He shows a characteristic trait of the kind of psychopath who adjusts at a lower social level than that of the family. The inference is that there was a sense of inferiority, and that, as is often the case, he sought an environment in which he could dominate. He fell into the usual habits of drinking and excessive gambling and sexual promiscuity. He shows also the antagonism to parents that is so frequently found in the psychopath. So far this is a fairly common picture in which there seldom (apparently) develops a "frank" psychosis. It is that of the inadequate psychopath, who evades responsibility and critical environment, and follows a course of pleasure seeking. Why he fell so ill is not entirely revealed, but that his psychopathic adjustment was not a very secure one is glimpsed from several hints in the history. There was the "at least latent" homosexuality, and the fact that for seven years

preceding his breakdown he had been engaged to a woman and that his illness has some relation in point of time to the problem of impending marriage. He stated that he has always had some fear of women. His tendency to superstition and his former adherence to the cult of Besantism suggest but tell us little about a probable imperfect contact with reality.

CASE XCVII.—Male, 33. At the age of about seventeen he seems to have had a mental disorder; he shunned people, was irritable, thought Catholics were after him, felt that everybody had an eye on him. Four years later there was another attack; he slept poorly, had ideas of reference and persecution. He was drafted, and was overseas; he worried but got on fairly well, but later began to feel as though officers and others were riding him, thought his seatmates in a train were mumbling about him, that there was a girl from home nearby, that there were things he was supposed to do, but was confused about it. In the hospital his paranoid delusions seemed rather unformed and elusive. He seemed to have a fight complex, referred vaguely to things other patients did that he ought to resent. He showed "stubborn egocentricity" and at the same time vacillation, and the interpretation was that feelings of inferiority were projected. Intelligence was thought to be low but does not seem to have been precisely measured.

In this case there is difficulty in distinguishing between pre- and post-psychotic personality. He was always quick tempered, disliked books, was scrappy in school, was always told that he was sensitive. With *some* teachers he got on well, he says. But the most conspicuous psychopathic indicator it is hard to appraise, on account of his early breakdown; *i. e.*, he made very frequent changes of position, made "innumerable" attempts to enter into some business or other, did not seem to be able to get the right work. Whether that was an indication of his psychopathy or was differently based as a product of his schizophrenic shift is not clear.

The remaining cases included in the extended group of the thirty-five psychopaths, Cases IX, XVII, and LXXXVIII, do not add much in a definite way to the evidence. The first, female 40, who was always regarded as nervous and dependent upon her mother, displayed temper and some tendency toward an invalid reaction, had a late schizophrenic-like reaction in which she showed childishness of behavior, fears, some paranoid-like ideas directed towards her father, thinking he ought to do more for her. The second, female 42, as a child was spoiled and never thought of anyone but herself, got her way by "working her mother," and had

to be forced through school, had some paranoid ideas referring to persons in the office in which she worked, offered many physical complaints, and seemed to tend towards an involutional development. The third, female 24, described as extremely sensitive, zealous, intense, unstable, longing for affection and independence, with a somewhat exaggerated urge for sincerity and truth, high tempered, having trouble with her father, had "hysterical tantrums," threatened suicide, was talkative, and distractible, excessively emotional, had delusions about medicine and was finally diagnosed as schizophrenic.

The conclusions from so few cases must be made with diffidence, but it must be said that so far as these cases offer evidence, there is but little relation between psychopathic development and schizophrenic reaction. One must not expect to find psychopaths of copy-book clearness, it is true, except in text-books, but it can be said that, among these hundred cases, there is no single case in which a pronounced psychopath, unless of the somewhat dubious "inadequate" type, becomes unequivocally schizophrenic.

"MANIC-DEPRESSIVE" REACTIONS.

We felt justified in segregating thirty-four cases and designating the group as "manic-depressive-like" reactions. Data in four were insufficient as regards personality, and four were regarded as too nondescript to be included in the grouping that follows.

Of the remaining twenty-six, fourteen were of the "inadequate" type of personality. Whether they should be accepted as inadequate psychopaths remains to be decided. Twelve were regarded for present purposes as "sthenic" in type of personality deviation. The eight cases occurring in the group of the most psychopathic and also in the group of manic-depressive reactions *all* appear in this group of "sthenics."

The reactions of the more asthenic or inadequate personalities are predominantly depressive in character. Taking the cases *seriatim*, the descriptive phrases characterizing the reactions are: agitated, depressed; depressed, confused; depressed, had ideas of poisoning; depressed, hopeless; had wide sweeps of moods; elation and depressions (following pneumonia); mixed reactions; depressive spells, dependent; depressed and agitated, paranoid; varied symptoms; fear, miserable; depression and somatic ideas;

crying and confused, then overactive and noisy; had attacks: was excitable, depressed, noisy, sensitive, resentful (suicide).

There is not much in the character delineation of these fourteen depressives that suggests the "inadequate" *psychopath*. They were characterized respectively as inadequate; insecure and seclusive; lacking initiative; somewhat inadequate; gloomy, sensitive and irresponsible; a model boy; retiring; shy and nervous; depressed and agitated; sensitive and shut-in; mainly inadequate; quiet and bashful; model child; tending towards invalidism.

Of the fourteen, five attract attention as showing some relation between inadequacy of the psychopathic type and psychotic reactions.

CASE V.—Male, 48. He came to the hospital in a condition of depression and agitation, and with a history of similiar previous attacks. There were ideas of somatic and mental loss. He feared that his wife would leave him. He had ideas that he could not walk, or eat and that for weeks at a time he had had no intestinal action. There were no deep feelings of self-depreciation and no definite paranoid ideas. There were lighter moods, which he seemed to try to conceal, and he had a tendency to fabricate.

He was a rich man's son, was brought up in luxury. He was sent to boarding school but did not stay. He never took part in boys' sports, did not get on well with boys. He was bashful, ill at ease, seemed from boyhood to be unstable, depressed and hypochondriacal. He became roving, dissatisfied, would go about with low companions and pay all expenses. He was kind hearted and generous. He never had any regular occupation. He drank and used drugs. He is said to have lied persistently, bragged, but was honorable in dealings. He had several love affairs but in each case thought the girl did not care for him. Since the age of thirty-five he has taken no alcohol but has used drugs, leaving off for months and returning when depressed.

The case is of interest since it illustrates a compromise between psychopathic development and a "frank" psychosis. He adapted to his inferiority by the psychopath's customary "running away." But his adaptation was only relatively successful since he seems to have been unable to sustain a comfortable mood level, and was habitually to some degree depressed. But when, on the other hand, the depression got the better of him, it lacked depth, was punctuated by brighter moods, and he was not able to sink into real self-depreciation, his psychopathic adjustment of evasion of responsibility presumably contributing to save him.

CASE XX.—Male, 35. In this case the description of the inadequacy is too scant to amount to much. He was diagnosed as a case of constitutional psy-

chopathy with psychosis, the inadequacy being inferred mainly from the fact that in his early youth he kept for four years a job of leading a blind man, and because he married a deaf mute. His psychotic reaction was distinct, but in view of the insecurity of the evidence of psychopathy is not significant.

CASE XXXIII.—Male, 60. In this case the mental disorder is sufficiently clear, but the background of psychopathic personality is not so plain. Ten years before his admission to the hospital he had a "nervous breakdown" similar to the later one, and for three years he was depressed. Shortly before coming to the hospital he had the idea that he was not entitled to any food. He groaned and was restless. In the hospital he said that his case was hopeless, and complained of bowel troubles that appeared to be imaginary.

The psychopathic features were in part inferred from the fact that for twenty years he had lived on his wife's income. He seems to have been devoted to his family, and to have been able to maintain a satisfactory mood level when things went right; he would be enthusiastic and elated. When things went wrong, he would become depressed. Usually he was cheerful and agreeable and easy-going.

CASE XXXVI.—Male, 31. There was no psychotic reaction in this case, but in the hospital he displayed remarkable mood swings. He was highly irritable, variable in his conduct, would at times be pleasantly cooperative, and again would display great anger. Morphine addiction was the cause of his admission to the hospital.

He was "spoiled," was sensitive, became a spendthrift, was late in accepting responsibility, was always of a gloomy disposition.

CASE LXV.—Female, 22. She was diagnosed as a constitutional psychopathic inferior with psychosis, although she showed no very marked symptoms while in the hospital. She is described as introspective and dependent, idle, untrained, affectionate, but not compatible with her father. She always desired commendation. She could not conceal her feelings. She had a "nervous breakdown" at eleven, with fear. She married without love at eighteen, was miserable, was separated from her husband, threatened suicide.

In the group in which there was personality deviation of the "sthenic" type, there were twelve cases. In the eight cases in which there was marked enough personality deviation to warrant including them within the group of the twenty-two most psychopathic persons, it is noticeable that the mental deviations were largely of the nature of affective changes. Casual inspection of the records shows that there was comparatively little of definite psychotic reaction. The mental disorders may be characterized briefly as follows: affective instability prominent; many depressions (with question as to their depth), suicidal, paranoid; emotional attacks and drinking; emotional instability, stress, somatic delusions,

homicidal, erotic; remorse, childishness, poor emotional control; many attacks, emotional changes, delusions, a great variety of symptoms; excitement, distractibility, probably heard voices; great excitement, emotional excess, misidentified.

Cases II, XXXI, LXVII, and C are deserving of attention as instances of marked psychopathic personality with psychotic reaction.

CASE II.—Female, 18. There was some illness at about fourteen, with hyperactivity, screaming, talkativeness and insomnia. At times she was moody and silent. Since then there has been restlessness, and excitement at times. During the year before admission she did not get on well with her father. She had been going about much, said that she hated her parents, she became excited, misidentified, ran her car at high speed, was somewhat combative, erotic, sang, and was alternately abusive and affectionate. There was pressure of activity, she was irritable, made requests, screamed, was self-centered, exhibitionistic, dramatic when not allowed her own way, elated, grandiose, restless, destructive.

The history showed previous psychopathic tendencies, although the account is not wholly consistent. She was a very robust child, learned easily, was ambitious. It is said that she was a quiet child, spent much time with her mother, was vain, pleased with attention, and was spoiled by her mother. She was very egotistical, did not associate with other children, dallied, was petulant, snobbish, lacked consideration for others.

CASE XXXI.—Female, 65. The record does not indicate that there had been any serious mental disturbance until the year before her admission to the hospital although one report of her contains the statement that she had been subject to "nervous breakdowns" and had a number of severe ones. She then began to be more nervous, was restless, walked about, said she did not know what to do. She grew worse, had somatic ideas, thought she was pregnant, had visual hallucinations, was emotionally unstable. She was noisy, agitated, profane. In the hospital she showed a variety of symptoms. She was noisy, impulsive and abusive, at times, again very amorous, danced, wished to embrace people. She was very irascible, grew combative, more and more assaultive, homicidal and self-mutilating.

She was unmarried. She had always wanted her own way, "lorded it" over everybody. She was always sensitive, excitable, had temper outbursts. She was energetic when aroused, but her great interest in work was always in things that she liked to do. She wished much attention from friends, was fond of friends but her associations were more with women than with men. She was generous but made no exertion for anyone. She was always disposed to study her own comfort, made much of slight illness. She was secretive about sexual matters, and had masturbated for years. She did good work in school, was intellectual.

There is nothing in the history of this woman that will explain why, after having been badly adjusted all her life, but maintaining

a working balance she should at the age of sixty-five lapse into a definitely psychotic state.

CASE LXVII.—Female, 46. She had many attacks and there appears to have been no disagreement with a diagnosis of manic-depressive psychosis, constitutional inferior.

Her first attack was at the age of twenty-five, and there have been twelve clear attacks, during which, all told, she has produced a great variety of symptoms: depression; excitement; restlessness; seclusiveness; fear (of insects); change of mood from gentleness to cruelty; suicidal attempts; arrogance; aggressiveness; impulsive behavior; idea that she was changed into an animal; peculiar feelings; ideas of incest relating to her father; feeling of electricity; psychomotor retardation; difficulty of thought; delusions about impending torture; misidentification of persons; erotic manifestations.

Her history shows a very warped personality. She was indulged by her father, and was devoted to him. Her attendance at school was irregular. She was vacillating, impulsive, had her own way, was inclined to have sudden outbursts of temper. She lacked manual dexterity and personal resources. She was perverse, but sly, was somewhat difficult to live with, had wide variations in her emotions. She took little interest in work, was never very successful. She was attractive, however, and was interested in having a good time.

There is almost a superabundance of at least surface data in this case; there is the picture of varied personality difficulties and profound psychotic reactions. It is apparent that she attempted an early adjustment in which there was much evasion of responsibility and enforcing of her will upon the environment. There was an early disappointment in love which was an unbalancing factor. She continued her attempts at evasion after marriage at twenty-two: there were six induced abortions and many separations from her husband. The mental disorder that ensued after the breaking down in her adjustments was striking in its severity and variedness of phases. Although an important case for the theory of psychopathic personality, data are lacking for determining whether the apparently unusually profound reaction upon a psychopathic basis is due to the presence of unusual factors in the personality.

CASE C.—Female, 19. The diagnosis in this case was hypomania with psychopathic personality, and in another hospital constitutional psychopathic personality with affective swings. Her illness followed the breaking up of an affair with an elderly man. In the hospital she showed a great variety of symptoms, mainly of the nature of affective exaggeration. She is described as uncooperative, noisy, meddlesome, erratic, unsatisfied, irritable, elated, explosive in temper, given to sudden weeping, very exhibitionistic, mischievous, at times mutinous, destructive, craving excitement and action.

The personality shows wide deviation from normal. She was an only child, was shy, difficult, had a bad temper, lacked ability for application, disliked any kind of work, was retarded in her school work. She was not harmonious with her mother and early in life was definitely hostile in her attitude towards her. She was jealous of the younger children, feared her father and always resented his lack of interest in her, was never happy at home. She always had marked sex curiosity. She was more eccentric after puberty, was impulsive, fantastic, jealous. She was dismissed from several private schools on account of "perversions."

The four remaining cases among the eight with exceptionally marked personality deviations do not present equally well marked reactions. In one, emotional instability is prominent. Another has shown a tendency over many years to have depressive periods which seem somewhat lacking in sincerity. A third drank, used drugs, made emotional display, was talkative, and tended somewhat towards hyperactivity. The fourth, a woman of eighteen, had remorse and loss of emotional control after an abortion.

The four remaining cases of the twelve of the group having "sthenic" psychopathic tendencies may be passed over briefly.

CASE XI.—Female, 39. There was involvement of drug addiction in this case, but she had had a tendency to argue and quibble, and displayed some depressions chiefly as reaction to situations. There had been two suicidal attempts, one of them of doubtful sincerity. She tended to "slump and brood" when there was any difficult situation to face, or when any attempt was made to make her cooperate or make any plans for her future.

She is described as psychopathic in make-up, spoiled, wilful, changeable, moody, unforgiving, given to display of temper and always more or less of an invalid. Morphine had been used off and on for years for asthma. In Red Cross work in France she was efficient.

CASE XLIX.—Female, 40. About thirteen years before admission she developed a habit of using cocaine and alcohol as a sequence of a period of restricted life. Ten years later there was uncontrollable alcoholism during war service. Before her admission to the hospital, she had lost interest, was restless. In the hospital she was demanding, depressed, unappreciative, made suicidal attempts, demanded gratification of every whim, made endless appeals to go home. For days she would be quiet, then there would be days of restless agitation.

The personality deviations are not very clearly defined. She was a little different from others, is spoken of as having a neurotic make-up. After school days, her only interest was in society. She always craved distractions and recreations. She had intense dislike for her father, and avoided contacts with the family. She stated that she was always restless and had insomnia.

CASE xci.—Male, 21. About two years before admission he was depressed, and had great retardation. A year or so later there was a similar period. Later in the same year, preceding his admission, and following his receiving a small inheritance, he had shown extravagance and rapidly developed an excitement. For six weeks he was on the go, belligerent, stubborn, expansive. In the hospital he was very expansive in his ideas, had delusions of affluence, varied from pleasantness to great stubbornness, made impossible requests, but did not seem to have succeeded in becoming really elated. There was a tendency to lack confidence, and he had some ideas about being wronged, especially in business matters. He was very inquisitive, and he took pleasure in annoying another patient.

He was always frail, and in childhood had a tubercular knee. He had outbursts of temper, was inclined to have his own way. He was always an impulsive boy, had no definite plans for the future, although he was ambitious and active. He was rather easily offended, but never held grudges. He was always backward in school but was a favorite. At home he was indulged by his father. He had many friends. He was very sociable, trustful, generous, conscientious and honest, always normally affectionate towards members of the family. He never tended to blame other people or circumstances for his failures. He was modest.

CASE xcvi.—Male, 16. The diagnosis of this case had presented difficulty in two hospitals. Except for one period, he had been having since the age of thirteen frequent "spells" of excitement which his family called "wild spells." These would come every three or four weeks. After them he would be exhausted for a time. In his normal periods he was quiet, self-conscious and retiring. These spells were displayed in the hospital. He acted like a child in a tantrum, was restless and at times threatening, but was rambling and disconnected in his talk, spoke at one time of detectives and guns. He changed abruptly to depression, was retarded and fearful, then abruptly became cheerful again. Once he insisted that there was strychnine in his food. In the second hospital the periods of excitement continued to be shown, but the depressions do not appear to have been so clear.

He was sickly the first nine months of his life, and had always shown eccentricity about his food, and was humored about it. He was quick tempered, but on the whole a good natured child until about ten when he began to be more irritable and moody. His parents always felt that he was lazy and that he lacked initiative. He always tended to play with younger children. He was very determined as a child, but never showed genuine tantrums. He was affectionate, but did not confide in his father, and was never chummy with him. There was some shyness, but he was regarded as normal socially, except that he had no chums.

Somewhat in contrast with the schizophrenic reactions the manic-depressive type shows fairly conclusively a positive correlation with psychopathic personality. Not only is there a greater

incidence of the manic-depressive-like reactions in the whole group of one hundred cases, but individual cases are to be found which show the more developed psychopathic states issuing in definite psychotic reactions. It is not made out that the more profoundly psychopathic personalities are more likely to eventuate in psychosis, nor that there is a more profound degree of psychotic reactions among these. Nor is the reverse shown, that the more profound reactions occur in the cases in which there is a less complete psychopathic development, although it can apparently be seen in some cases that the psychotic reaction is in close conjunction with personality developments that are rather to be regarded as failures to arrive at a well-working psychopathic adjustment than the reverse. The most certain conclusion is that among these cases the most frequently found association is between a personality type which we may call sthenic, the manifestation of which is most frequently incompatibility, and a reaction pattern which is allied to the manic-depressive at least in its forms of manifestation. In some cases, certainly there is doubt of the depth of the relationship to the true manic-depressive states, but the evidence is not very satisfactory, and the suggestion that the excitements and depressions shown by these psychopaths in their psychotic reactions may be more closely related to the "normal" manifestations of the psychopathic type of adjustment: namely, to reactions which we call tantrums and sulks or to the popular conception of "hysterical attacks," than to the genuine manic-depressive, must remain as only a working hypothesis for consideration.

MIXED REACTIONS.

There were seven cases in which the psychotic reactions displayed strongly features of both the cyclothymic and schizophrenic type. No uniform personality background could be discovered in these cases, although in all but two of them some psychopathic tendencies in the developmental stages could be made out. One who was paranoid and also had excitement and depression had been cheerful and social. One appeared to have been normal in personality until there was difficulty in the family, resulting in the separation of the parents. One who had no temper was promiscuous and drank. The rest showed what we have called psychopathic tendencies of the incompatibility variety; there was antagonism,

temper, demanding, jealousy, stubbornness—they tended to be difficult. Three were included among the most psychopathic, and another was among the supplementary group of the distinctly psychopathic.

CASE VI.—Female, 47. She had an unmistakably psychotic condition. For about two years before the first admission, she had felt at times forlorn and lonesome, sometimes thought she was being watched and that she was suspected of being abnormal. Nine months before the later admission to the hospital she had a belief that love had gone out of her life, and went out to seek love. There were alternating times of elation and depression. In the hospital she divulged many ideas of reference, thought that everything that went on coincided with some movement of her own. She was usually buoyant, and talkative, but there were periods of short duration when she was depressed and tearful. She became worse, was irritable, quarrelsome, had periods of excitement, at times was too affectionate towards other patients, thought she was under the influence of another woman, that various people were in league against her, became more unstable and more systematic in her delusional trends.

The genesis of her personality difficulties is not clear, but in her adult period she was proud and sensitive, saw slights, felt above most people and is described as always having been suspicious and very dominating. Everywhere she had been dissatisfied, and did not fit into her surroundings. Earlier in life she had been attached to her father and had trouble with her mother. She seemed to be jealous of her daughter's popularity, and of the promotion of other people.

CASE X.—Female, 20. The schizophrenic features in her reaction were rather clear; there were sexual fantasies, apathy, giggling. But the affective features were also prominent. The final diagnosis was schizophrenia. Objectively the personality is a fairly typical picture of the psychopathic child. She had temper tantrums, was demanding, resisted authority, thought she was not treated fairly; but the story given by the patient reveals that she worried about school, feared her teachers, had nervousness, lacked ambition.

CASE XII.—Female, 43. As early as the age of twenty she accused people of theft and was unreasonable towards servants. Her suspiciousness increased with apparently no definite break. Before her admission to the hospital she had been accusing her mother of plotting, thought people were tampering with her mail, became more restless and more accusing, applied to a public department for protection, said that neighbors were plotting against her, and insisted that she was being followed. In the hospital, she was hilarious, boastful and egotistic, was active, elated, talkative. But she also showed quite definite delusional content, and her ideas tended to become systematized: she saw meaning in automobile lights, referred to an international conspiracy, talked of tricks, of a woman impersonating her, and everything that was done seemed to have meaning with reference to her.

She had been selfish from early childhood, difficult, lacked consideration for others, always wished her own way, made many demands of her family, which she thought should be gratified without comment. She made good progress in school but was erratic. Her energy had always been spasmodic; she would work furiously if interested. There was early tendency towards suspicion, she developed an early fear of robbers. She is described as moody, irritable, self confident, having few close friends, unconvincible. There was anxiety over the care of her possessions and she studied her health. In social life, however, she was agreeable, jovial, and bright, interested in social affairs and in music.

CASE LXXXIX.—Female, 28. She began at sixteen to have attacks of mental disorder, the first one following an altercation with the president of the school which she attended. She was excited and talkative, and thereafter always tended to talk too much. At twenty there was another excitement, and she thought the manager of the institution in which she worked persecuted her and had drugged her. Two years before admission to the hospital there was another break. She brought up old grievances, blamed members of her family, suggested that her food might be poisoned, said that there was an attraction in her eyes. In the hospital in the succeeding attack she was violent, excited, fearful, overactive, talkative, uncooperative, agitated, restless, was paranoid, had ideas of bodily influence, thought she was being watched and talked about. On second admission to the hospital, her condition was worse and the schizophrenic features were then much more pronounced. She had delusions about food, thought that people in the hospital were tortured and that they were fed disgusting things. She exposed herself, said that she was as much male as female, said she was watched, spoke of having a mission to get animals and plants working together, making people themselves again. There were voices telling her to straighten things out. She said that one side of her mind was over-developed, that things had happened because of her. The diagnosis finally was schizophrenia.

She was much indulged by her family and seems to have given early evidence of psychopathic adjustments. She was determined to have her own way, was jealous of her sisters, was stubborn and difficult to manage, fond of approbation, constantly complained of imaginary ill treatment. She was wilful, high strung, had temper tantrums, wanted to be the center. She developed early a tendency to argue, was never affectionate, never forgot grievances, was very irritable when she could not have her own way, easily upset, had no staunch friends, although intimate with a few girls. She never was especially interested in men, was never engaged. She was obstinate and contrary in the home, talked to elders about her mistreatment, felt that she was imposed upon. She was energetic, played well, was studious, but erratic.

This case, as is the preceding, is of interest as an example of a profound psychotic reaction in a deeply psychopathic person. The evidence of psychopathic personality is not without flaw, however,

since there was an early definite episode of mental disorder, and it is not possible, from the description, to distinguish primary from what may be secondary or post-psychotic personality change. On the other hand, the change in personality following her first illness, if it occurred, was in the direction of increased tendencies to blame others for her troubles. She seemed to maintain a "normal" type of projection until after her second breakdown when she developed delusions of persecution. The causes of her trouble are of course not wholly revealed in a case history of a patient who underwent no especial analysis. The family background is bad, since she is the youngest in a family of twelve in which several of the girls were decidedly unstable. But what the deciding factors were which precipitated her into her psychosis can be only a matter of conjecture.

Although the cases are few in this group, it is suggested that it is a type which promises considerable for the study of psychopathic adjustments. The psychotic reactions and the psychopathic features are both pronounced. What is lacking, of course, is adequate subjective data. It is worth recording that all the seven cases of the group were females, and there appears to be as an aspect of the general incompatibility in the group as a whole much evidence of mental distress, assuming that complaint of bad treatment is indicative of discomfort. Family situations are prominent also in these cases.

TOXIC REACTIONS.

The term "toxic reactions" is used somewhat loosely to include in addition to acute and chronic mental deviations due to alcohol and other drugs the addiction itself in cases in which there was no psychotic reaction.

Among these cases, so far as the evidence presented goes, there was comparatively little background of recognizable psychopathic personality. In fact there was surprisingly little. In the twenty-six cases, the psychopathic features described seemed to warrant in only two cases placing them among the most psychopathic. The prevailing type was the apparently well, cheerful and happy person. In fifteen of the twenty-six, nothing of psychopathic personality was indicated in the history, with the exception, of course, of the flight to alcohol or other drug itself, which, however, must not be regarded as conclusive evidence of psychopathy. Two of the re-

maining eleven were included in the essential psychopaths. One of these was described as lazy, stubborn, selfish, wayward, lacking poise and having no fixed occupation. The other was wilful in childhood, excitable, wanted her own way, did not mix well with strangers. The remaining nine were respectively described as: nervous, not a leader; happy, irresponsible having no shame; inadequate and emotionally unstable; peculiar, possibly mentally deficient; was indulged, dissipated all life; associated early with bad element; delicate cranky child, sometimes truant; cheerful, happy, superficial; egotistical, good natured, highly sexual.

Details of these reactions have little or no interest since our object is the relation of psychopathic background to psychotic reactions: some of these cases were not psychotic; the remainder were segregated as those in whom the psychotic reaction was toxic, at least predominantly, and so presumably not related to the personality formations in any aspect that for the present purposes is under consideration.

MISCELLANEOUS AND UNCLASSIFIED REACTIONS.

There is comparatively little to be discovered in the reactions of this group that is of interest from the present standpoint, but a brief characterization of the cases may be worth while. Among them there were four who were regarded as among the most psychopathic, and three appeared in the supplementary group of distinctly psychopathic cases.*

CASE III.—Male. He was a worrisome and somewhat paranoid in his attitudes and developed an obsessional neurosis.

CASE XXI.—Male, 15. His reaction was a peculiar one. He was restless, seemed moderately depressed, and had vague paranoid ideas. He had feelings of being different and inferior. He said that everything got him excited, that he was easily scared. He complained of having had funny ideas. He said that everywhere he went he was teased. His attitude was that he did not have to do things unless he liked them. He had a variety of mannerisms, would curl up in odd postures. He seemed unhappy unless things went the way he wanted them to.

He had always been selfish and rebellious. It was hard to make him concentrate, and for several years he had a tendency to argue in a belligerent way. He did not get on well with other boys, chose companions younger than

* The starred cases are in "Most Psychopathic" group.

himself, complained of the treatment of him by other boys. He had to be forced to go to school. He displayed temper, got into stormy scenes, was gloomy and morose in school, never played in active games. He was probably subnormal in intelligence.

CASE XXII.—Female, 42. She was gentle and easily hurt, tended to display physical reactions under hurt. Her illness was in the form of such physical reactions, she had upsets, wanted attention.

CASE XXXII.—Male, 23. He had a tendency to develop considerable mental disturbance if "forced into a corner," but in the hospital where he stayed only a few days not much disorder was observed. He had night terrors when he was about eleven, was restless and irritable at puberty, ran away from schools, was vacillating, rambling and impulsive and for some years had been hard to control, worried and falsified.

* CASE XXXVIII.—Female, 21. She spent time in two mental hospitals, but in neither did her mental disturbance eventuate in any definable way. In the first it was concluded that she showed an essentially "empty personality," and that there was not much to build upon. In the second hospital, she was somewhat silly, boastful, inactive, but mainly cooperative. She had somatic interests, and made much of the perspiring condition of her hands. She was self-conscious and defensive, made unkind remarks, and for several weeks was somewhat uncontrolled and childish in her behavior.

As a psychopath, this young woman is of considerable interest. There was difficulty in feeding her in infancy. In her babyhood she was shy, cried all the time. She never played with others, insisted on her own way, did not get on well with her sister and was jealous of her father's attention, and although in early life devoted to him, later hated him. In childhood she got on well with her brother, but quarrelled finally. She was always obstinate and very selfish, would scream and cry to get what she wanted. She never fitted in socially, never had any friendship with boys. She always placed blame upon someone else. She worried much over herself, at times was depressed, at times elated. She was bright in school, entered college, but did not fit in.

CASE LIII.—Male, 35. The background here is rather that of the "psychasthenic" than the psychopath, and the reaction type was the obsessional. He was timid in childhood, never could do much work, had fears and excessive sexual urge, finally developed compulsive ideas.

CASE LVIII.—Male, 53. In this case psychopathic personality was not indicated by the available evidence. He was cheerful, made friends, drank. He had a reactive depression, with delusional somatic ideas, and ideas of reference. He talked much of fires and murders.

CASE LXI.—Female, 57. She had "queer spells" that were precipitated by displeasure. She became hysterical, was hallucinated, had ideas that members of her family were dead. She wept and screamed. She had been a hard worker, but was inclined to have spells of being peeved.

CASE LXVI.—Female, 25. Information was scant in this case. She came from a prominent family, was of the tomboy type, had never had any definite aim in life, and had her own way. Before her admission she had kept herself in her room for six weeks, would not eat with the family, threatened suicide. In the hospital she was inclined to be disagreeable when crossed.

CASE LXXI.—Male, 25. At seventeen he began to be very nervous. He has continued to develop severe psychoneurotic symptoms. There were fears in regard to his heart, he had twilight states and spells of anxiety. Analysis showed that his drinking was closely related to his fears.

He was very strongly attached to his mother in childhood, but developed feelings of rebellion towards her. His father who drank he greatly feared. There was truancy in the last year of school and he had some feelings about authority. He had doubts even in childhood in regard to what was right. As he grew older, although "big and husky," he had feelings of inferiority before other boys. He has a tenor voice, is affected in manner, has a mincing gait. He is a musician. For five years he had been drinking excessively.

* CASE LXXIV.—Male, 25. It is a question whether this is a case of secondary psychopathic personality based upon an encephalitis following influenza. He was probably a strong healthy child, was a good mixer at school, and took an active part in sports. He had nervous symptoms, there was sinus trouble for which he was given morphine and from this he went on to addiction. He drank moderately also. For several years he had suicidal ideas, and he made one attempt to hang himself. In the year before admission, he states, he had hallucinations for one day.

His personality at the time of residence in the hospital was distinctly psychopathic. He seemed very badly adjusted, was self-opinionated, self-willed, reacted badly to advice, when it opposed his own views. He was extremely self-centered and introspective, apparently had no goal idea and no plan except to satisfy immediate desires.

CASE LXXXV.—Male, 22. He is described as serious, quiet, sensitive, seclusive, generous, not athletic, effeminate and probably strongly homosexual. He was always dissatisfied, always had some urge to leave home, was always seeking new pleasures. He gambled, drank, was arrested many times. His reaction is that of the chronic delinquent.

CASE XCII.—Male, 28. Recently his mind wandered, he was at times incoherent, was somewhat suspicious, and he probably had hallucinations. He had been drinking some, and visiting houses of prostitution. At the age of sixteen, it is said, he had an attack similar to the later one. He had never cared for school, was careless, superficial, unsteady, lacked initiative, was immature. When "normal," he is said to have been good-natured, kind hearted, easy to get along with. The final diagnosis was schizophrenia, and he made a social recovery. It was observed that his illness was an accentuation of his "normal" condition; his carelessness, superficiality, lack of sustained interest, superficial moods, mischievousness.

CASE xciii.—Female, 24. This is a problematic case that is most satisfactorily classified as an hysterical psychosis. There was dissociation and definite rapidly succeeding phases. The reaction was precipitated by hardship. The personality does not show any marked psychopathic developments so far as the record is explicit, but she is referred to as infantile in appearance. She was regarded as conscientious and efficient.

* CASE xciv.—Female, 66. Her reaction was of the invalidism type. She had many somatic complaints, many fears of disease, thought she was unable to walk. She spoke of stomach trouble, constipation, weakness, nervousness, inability to exert herself, depression. She was petulant and irritable when her relatives showed lack of interest in her complaints. She had been indulged, was very dependent, self-centered, helpless, was sensitive, sulked, showed no initiative, wished much attention, was a great talker.

SUMMARY AND CONCLUSIONS.

Clinical reports on a hundred recent admissions to a hospital were used as the basis of a study of the relation between psychopathic personality and psychotic reaction. Selected cases, twenty-two in number, in which there was evidence of the more pronounced psychopathic background were especially considered as useful evidence.

Tentative diagnostic distribution of the cases showed a predominance of "manic-depressive-like" reaction types, but there was a fairly wide range of reactions more or less related to previous psychopathic mal-adjustment. There was a tendency for the more distinct psychopathic pictures to be related to the manic-depressive or mixed forms of reaction, while the schizophrenic break, in anything like a pure form as related to pronounced psychopathic adjustment, was not clearly represented.

There was definite contrast between the background of inadequacy (not usually identifiable with our conception of inadequate type of psychopathic personality), commonly seen in the schizophrenic reactions, and the more "classic" psychopathic personality with emotional instability and incompatibility found in the manic-depressive of manic phase and the mixed types of reaction. Superficially at least this contrast is well expressed by the terms "asthenic" and "sthenic" personality.

The depressive reactions, also, somewhat like the schizophrenic, did not as a rule show in the background distinct psychopathic personality.

The "mixed" reactions afforded some striking cases of coincidence of profound psychopathic formulations and high degree of psychotic disorder.

Among twenty-six cases in which there was addiction to alcohol or other drugs there was found very little manifest evidence of psychopathic personality.

A group of unclassified and miscellaneous cases contained some interesting individuals, but no significant generalizations emerge from them.

The study was in part an outgrowth of the problem of technique in the approach to the psychopath who in his "pure" and non-psychotic form is well known to be a poor subject for psychological analysis. It is indicated that the psychotic reaction in the psychopath is a valuable "experiment of nature" (more probably a product of social inadequacy) which in some cases allows a better insight into the psychopathic formulations, despite the complication that arises from the (hypothetical) conclusion that the psychopath who becomes psychotic may be an imperfect representative of the class. It is so seldom, however, that anywhere in practice the ideally unmixed case of anything arises that this is not at all specific to the problem in question. What we have found is that remarkably profuse psychotic development occurs among persons who have shown objective evidence of deeply psychopathic formulations. On the other hand, the evidence is quite to the contrary of the assumption that might be drawn from this, that psychopathic adjustments are especially likely to lead to psychoses or that the severity of the mental illness is in positive correlation with the perfection of the psychopathic method of adjustment.

One cannot help some disappointment at the lack of clearness which the pictures, both of the psychotic reactions and the personalities, show: this is in part of course inherent in the complexity and nuances of the mental life itself, even in its fairly uncomplicated forms, but it is also due to a variety of difficulties that arise in the study and the treatment of the psychopath.

Much more work would need to be done before any statement could be made entirely reliably about the relation between types of psychopathic adjustment and types of psychotic reactions. The difficulty arises mainly from the inability at the present time to state what is basic, and not merely descriptively useful, in the

delineation of psychopathic varieties. To the extent that we are clear as to what constitutes at all a namable psychopathic deviation from normal personality, we are in a somewhat better position to say what the general features of the psychotic hazards of the class are. A closer scrutiny of the materials at hand even in present clinical records will be of some use. So far as the records considered for this study are concerned, it may be said that there is a paucity, among the psychopaths, of the production of anything like classic psychoses with usual temporal incidence. These psychoses seem somewhat anomalous, in both these respects. But of course only a much broader comparison of the whole group with a background of psychotic reactions in non-psychotic persons, similarly selected, would be accepted as at all reliable evidence. It can be stated only as true of this group that the distinct diagnostic picture appears to be rare. The prevalence of mixed forms is suggestive; schizophrenic reactions are apt to be atypical; and, as regards the manic-depressive types, there is much that appears among these cases that is more remindful of "hysterical" productions of the emotionally unstable than of the true manic-depressive.

It needs to be emphasized that in psychopathic personality we do not have anything remotely resembling any mythical mental *disease* or *psychopathological entity*. Psychopathic persons are those who have made certain recognizable adjustments which from case to case are seen to bear family resemblances, but there is nothing unique about them. Persons so afflicted may be usefully segregated for study, but the investigation of the class is characterized best as an effort to see in their relations to other equally complex and indeterminate variations the general features and principles of development. In a strict sense there are no psychopaths, but there is relative psychopathy, and the observation of all mental development from the "standpoint of psychopathy" is the most logical approach.

OBSERVATIONS ON THE SEX PROBLEM IN AMERICA.*

By EDWARD SAPIR, PH. D.

If the writer ventures to make a number of analytical suggestions on the sex problem which is agitating so many men and women in America today, it is not because of any very special knowledge which he possesses of the subject, but merely because some acquaintance with anthropological data and with the anthropological approach to social data, fertilized by such observation of American facts and tendencies as has come his way, has given him a point of view which is perhaps a little personal. At any rate he cannot hope to give much cheer to either the radicals or the conservatives and he suspects that he may be accused of having tried to please both. It is peculiarly difficult to keep prejudice and sentiment out of a problem of this nature, and he cannot flatter himself that he has succeeded in attaining true objectivity. Some of his readers may even suspect, and no doubt with some justice, that there is little herein set forth which is not a rationalization of personal bias. In the present state of ethical unrest and of limited knowledge of the facts one can perhaps do little more than make articulate the peculiar nature of one's prejudice and the rationalizing process by which he hopes to make that prejudice acceptable to others.

There are two measurably distinct aspects of the sex problem which are constantly being confused, though nothing seems more obvious than that every attempt should be made to keep them apart.

*Prepared by request. This study is the first of a series of contributions from outstanding authorities in the various social sciences which THE JOURNAL will publish from time to time.

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The purely practical problem of sex, physical and psychological, is absorbing so much attention that the ideological or cultural problem of sex is likely to be lost sight of. That every human being, as an organism desiring health, needs and has the right to demand sex gratification is, stated baldly, pretty much of a truism, though it is a truism which it has taken us much labor to convince ourselves of. But what is by no means evidently true is the assumption that the full content, or the major portion, of the question of sex is merely a matter of individual satisfactions. Sex, like every other natural function which is not purely vegetative, brings with it many intimate questions of personal adjustment, of the adjustment of the individual to society, and of the fulfillment or flouting of ideals of conduct that have grown up about the organic nucleus. All of civilization is, in a sense, an elaborate screen which humanity has put between itself and nature, with its tyrannical insistence on the necessities of biological functioning and with its sovereign disregard for the sentiments, the peculiar preferences, which men have chosen to develop out of a primordial chaos of instinct and emotion. Any philosophy of sex that begins with the feeling that it constitutes its own peculiar class of individual and social phenomena starts with an illusion. The problem of sex is fundamentally like any other social problem in that it deals with the attempt of human beings to reconcile their needs with cultural forms that are both friendly and resistant to these needs. It is necessary to stress this point, simple as it is, because so large a proportion of modern psychiatric writing seems almost deliberately to ignore the cultural point of view.

It is strange how readily we tend to believe that if only we can understand sex in terms which are applicable to the individual we have nothing further to worry about. We are constantly assuming for the field of sex conduct what it would never occur to us to accept as natural in any other field of human conduct. Much of human life has grown up around the necessity of preserving the organism, of securing sufficient food, clothing, and shelter. Yet these problems, urgent as they are, can never be viewed from the standpoint of the behavior of the individual organism alone but must be seen in their historically determined cultural setting. It is only in times of extreme crisis, when society and its mechanisms fall to pieces, that we can actually see the individual hungering and

thirsting as a natural organism, and even then he is more likely than not to give some hint of the restraining and moulding influences to which he has been subjected by society. Around the simple acts of eating and drinking has grown a vast economy, with an accompanying symbolism of power, of comradeship, and of other significant human relations that go far beyond the organic necessities of food and drink. And the ritualism of meals, meaningless from a merely physiological view-point, has come to seem so natural to the average civilized man that he would feel acutely uncomfortable if he were doomed for the rest of his life to supply his bodily needs without its ceremonial sanction. Why should the sex impulse, which is certainly of no more urgency in the life of the individual than the satisfaction of hunger and thirst, escape from the historical law of the conditioning of fundamental impulses into forms that take on the character of social values?

We are told by many modern thinkers that we have at last discovered the startling fact that sex is a "good" in itself and that, being such, its demands must be satisfied sooner or later. It would be far more correct to say that sex is neither a good nor an evil. It is merely a fact of nature. The concept of a good cannot be associated with it except in so far as human beings in society have come to look upon certain modes of conduct and certain states of mind which lead to and from the satisfaction of the sex impulse as good or valuable conduct or attitudes. To the extent that people withdraw from it their evaluating attention and leave it to the exigencies of nature, they reduce it to the unconditioned primary level to which belong the purely instinctive satisfactions of hunger and thirst and the random and unevaluated forms of motor conduct of an untaught child. The truth of the matter is, that to say that sex is a good in itself has as much or as little meaning as to say that it is good to breathe or to eat raw flesh. For men organized in society goods or values come not from a consideration of the simple satisfaction of impulses but from the heightening of the meaning of such satisfactions through the symbolisms of social intercourse.

A rather artificial divorce has been made between the sex impulse and love, or perhaps it would be more correct to say that the modern chafes at the supposedly unnecessary accretions which the sex impulse has received, that he wishes to free this primary value

from those trimmings which make love of it. If anything were needed to prove the inveterate romanticism of the present age, which never tires of the boast of its hard-headed realism, it would be this very unwillingness to recognize the naturalness and the universality of the emotion of love. One hears it said that among the truly enlightened love, in so far as it exists at all, is merely the casual association of the sex impulse with certain warm feelings of companionship or friendship and that nothing is more natural than that this fortuitous association should be constantly interrupted or broken up.

There is, of course, a reason for the present emphasis on the legitimacy of sex as such, as contrasted with the sentimental justification for sex relations on the basis of love. This reason is not far to seek. The old Puritan morality which looked upon the sex act as inherently sinful is still too painfully near to us, and the revolt which was bound to set in sooner or later has concentrated all of its energies on the annihilation of this notion of sin. Naturally enough, it has had little patience with the arduous task of retaining that in the inherited ideology of sex which was psychologically sound or, at any rate, capable of preservation as a value without violence to nature. What has happened is that the odious epithet of sin has been removed from sex, but sex itself has not been left a morally indifferent concept. The usual process of over-correction has invested sex with a factitious value as a romantic and glorious thing in itself. The virus of sin has passed into love, and the imaginative radiance of love, squeezed into the cramped quarters formerly occupied by sin, has transfigured lust and made it into a new and phosphorescent holiness. Love, a complicated and inevitable sentiment, is for the moment sickening for lack of sustenance.

We are in the habit of complimenting ourselves on the healthy attitude which is coming to prevail in America toward questions of sex. There is some justification for this, for it is obvious that an attitude that looks upon sex as intrinsically evil and that seeks to rescue it from condemnation by confining it into conventionally fixed and approved channels, is a repressive and unhealthy one. But I am not willing to grant, for all that, that the present excited and puzzled attitude, shifting back and forth in a single individual's

mind all the way from orthodox acceptance of the restraints of Puritanism to a reasoned religion of promiscuity, is a healthy attitude. The very notion of health implies the presence of a certain balance and of a fundamental surety of the significant outlines of behavior. The most that one can say for the sex mind of radical America is that it is in a state of transition and that a certain willingness to experiment dangerously is in the long run a safer thing than a premature striking of the balance. This may be a just interpretation of the few; of the many, who bless you for a formula for noble weakness, it is but psychology gulled. A realistic view of actual sex opinion and sex behavior leads to the feeling that on every hand life is being measurably cheapened by an emotional uncertainty in matters of sex, matters that no healthy society can long brook uncertainty of. An individual can create true personal values only on the basis of those accepted by his society, but when nothing is accepted, he has no room for the growth of any values that are more than empty formulæ. The "enrichment of personality" by way of multiple "experiences" proves to be little more than a weary accumulation of poverties. These shibboleths are given the lie by the uneasy eyes of the bored adventurers who drawl them out. Human culture, it seems, is so constituted that the individual dare never face his own organismal responses sceptically. These fundamental responses must somehow be taken care of, by implication, in the patterns of social conduct, and the individual who is constantly being called upon to create such patterns anew never gets beyond the point of struggling with nature. His "freedom" is but the homelessness of the outlaw.

The present sex unrest has been nibbling at more or less reliable information reported by anthropologists from primitive communities. Any primitive community that indulges, or is said to indulge, in unrestricted sex behavior is considered an interesting community to hear from. Such a community is at once equated with "primitive man" in general and has the great merit of bringing us back to that primary and glorious man that wishful romantics have always been dreaming about.

It does not seem to occur to the readers of excited books about pleasure-loving Samoans and Trobriand Islanders that perhaps these communities are not as primitive as they seem, that there

are perhaps other primitive groups that have developed an ideology of sex that is not so very different from that of our happily extinct Victorian ancestors, and that in any event there may be social determinants in such societies that make the question of value in sex conduct of lesser urgency than among ourselves. It is true that many primitive societies allow of erotic and marital arrangements that shock the sensibilities of our conservatives. But what should be denied is that sex conduct is truly unregulated even in these societies. A closer examination shows that the community has certain very definite ideas as to what is allowable and what is not allowable. As the native ideology of the permitted and the illicit, however, in such groups is rarely calculated to interest us unless we happen to be objective students of primitive culture, it is not so obvious why we should think the license, or approximate license, that we read into their sex behavior to be of special concern to us. If we cannot sympathetically understand their sex taboos, why do we pretend to understand their freedom from our sex taboos? Obviously they are in no better case than we ourselves. Historical factors have set certain specific bounds to the expression of the sex impulse in these societies, as it has set more or less specific bounds in our own, and a primitive reformer who attempted to break down every possible barrier to the free play of sex would receive small comfort from his fellowmen.

But it is simply not true that sex freedom is the norm for primitive societies. It is, as a matter of fact, very much the exception, and the presence of sex taboos, of institutionalized deferments of sexual gratification, and of all manner of sex ideals, so far from justifying us in wringing our hands at the perversity of mankind, might more rationally be expected to lead to a psychological inquiry into the reason why human beings have so persistently gone out of their way to put obstacles in the way of the immediate satisfaction of the sex impulse. A certain type of historian is ready with his answer. He tells us that these restrictions have merely come in as a by-product of the conception that women are a form of property. This is one of those theories that are too plausible to be true. The institutionalizing of marriage in terms of property can be amply illustrated in both primitive and sophisticated societies—this no one doubts—but we are far from

having the right to take it for granted that ideas of ownership are the root of sex restrictions. We know too little as yet about the psychological causes of sexual modesty and secrecy, of the universal dread of sex squandering, of the irresistible drive to hedging sex about in one way or another, but we may be certain that these causes are not of a trivial nature and that they are not to be abrogated by a smart and trivial analysis of sex by intellectuals who have more curiosity than intuition. For reasons which can only be dimly guessed at man seems everywhere and always to have felt that sex was a quintessential gratification that it was not well to secure at too easy a price, that it held within it sources of power, of value, that could not be rudely snatched. In short, mankind has always known that sex needed to be conserved in large part and made over into more than sex. Freud's theory of sublimation has always been man's intuition and sex has always restlessly striven to become love.

Nothing seems more difficult than to convince the all-wise modern that the emotion of love, quite aside from the momentary fulfillment of desire, is one of the oldest and most persistent of human feelings. It is far from being the secondary or adventitiously superimposed thing that it is so often said to be. On the contrary, much that is generally interpreted as primitive, because unromantic, may well be interpreted as a superstructure imposed upon the sex life by considerations of a relatively sophisticated nature—economic, social, religious or political.

It may be well at this point to relate a brief story which I collected a number of years ago from the Sarcee Indians of Alberta, Canada. The story goes back to the early days, before the Indians were seriously bothered by either the white man's morality or his license. It will seem all wrong to some, for it is nothing more nor less than an old-fashioned love story from anywhere and any time.

Here, once upon a time, they were camped in a circle. They were putting up the Sun Dance.* This one young man was making love to her, he and the

*The Sun Dance is the most important communal ceremonial of the tribes of the Plains, and the most sacred object in the ritual is the center pole of the Sun Dance lodge.

girl had love for each other. Every time that she came in, she would sit down close to where the people were singing and her young man would peep in between the lodge-poles which were leaning against each other. And so it was that his face paint would always be left on the poles.

After a while it was said that they were about to go on the war-path, so this young man went to his sweetheart and said to her, "Do not get lonesome for me. We shall see each other again." And then the girl gave him a little of her hair which she had cut off and she tied it up and they kissed each other and parted. Now they went off to war and the girl's heart dropped.* When the Sun Dance was over, the people broke up camp; they were to come together again at this place and at a stated time. They moved off in different directions. Now as to these people who had gone off on the war-path, they were sighted by the enemy, who sat down in ambush for them. When they got inside of the enemy, they were attacked and all of them were killed.

When a long time had elapsed the people came together again at the place that had been mentioned, and when they had all been assembled the news was brought that those who had gone off to war had all been killed—so it was said. This girl heard about it. And then she went to the Sun Dance lodge and came here to the place where her sweetheart had been in the habit of peeping in. She saw his face paint on the pole against which he used to lean. And then she returned to her people's lodge and, having arrived there, she took a rope. And then she went back to the Sun Dance lodge and climbed the pole which stood in the center of it. She tied the rope to the pole and looped the other end of it about her neck. And then she sang the song which her sweetheart had been in the habit of singing. After a while a certain one discovered the girl and what she was doing, how she was singing while seated up there on the pole. He spoke of it. They rushed out to her, but before they could reach her she had jumped off and strangled herself with the rope. Though they cut the rope off at once, she was already dead. That is how the girl strangled herself.

This story proves nothing, but it gives pause for thought. It contains all the elements of romantic love and it subjects that romantic love to the final test of all values, which is the test of tragedy. It is not an isolated instance by any means, though I should not like to be misunderstood as claiming it to be an average or even a typical incident of primitive life or of any other form of life. It is one of those comparatively rare but basically typical examples of the form that a natural value will take in almost any culture if supported by an underlying passion which is both pure and intense. To speak of frenzy or madness is useless, for, as

* The native equivalent for "she was broken-hearted."

the psychiatrist knows better than anyone else, frenzy is the climactic test of any value.

What is the meaning of this strange passion of love, which crops up at all times and in all places and which the modern rationalist finds it so difficult to allow except as a superficial amplification of the sex drive under the influence of certain conventional ideas and habits? It is as difficult to state clearly what the emotion consists of as it is easy, if one is willing to be but honest for a moment, to comprehend it. The sex nucleus is perfectly obvious and no love that is not built up around this nucleus has psychological reality. But what transforms sex into love is a strange and compulsive identification of the loved one with every kind of attachment that takes the ego out of itself. The intensity of sex becomes an unconscious symbol for every other kind of psychic intensity, and the intensity of love is measured by the intensities of all non-egoistic identifications that have been transferred to it. It is useless to argue that this is madness, for in a sense it is, but we have yet to learn of a value or an ideal that is not potential madness.

Why is it, then, that a sentiment which is as much at home in our despised Victorian yesterday as in the obscure life of a remote Indian tribe needs to be discussed with so much apology today? There is a complex of factors which explains the present temper and we need only mention them to make us realize how transitory is likely to be that temper. I have already spoken of the anti-Puritan revolt, which is much more than a revolt against sex repression alone but is a generalized revolt against everything that is hard, narrow, and intolerant in the old American life and which sees in sex repression its most potent symbol. Many young men and women of today who declare themselves sexually free are really revolting against quite other than sex restrictions and glory in the reputed "sin" as a challenge to the very idea of repression.

The revolt complex is powerfully strengthened by an insidious influence exerted by modern science. It has been one of the cheerless, yet perfectly natural, consequences of the scientific view of life that nothing in human conduct is supposed to have reality or meaning except in the ultimate physiological terms that

alone describe life or are said to describe life to its scientific analyst. If life is nothing but physiology, how can love be other than sex, with such immaterial reinterpretations as no hard-headed modern need take seriously?

Even more important, at least in America, is the great psychological need of the modern woman to extend and make firm her symbols of economic independence. Every attitude and act that challenges the old doctrine of psychic sex difference is welcomed, no matter where it leads. The most obvious differences of motivation between the sexes are calmly ignored and a whole new mythology has been evolved which deceives only the clever. The virulence of this reinterpretation of the significance of sex differences is tending to die down, but the psychological aftermath of the feminist revolt is still with us. Every psychiatrist must have met essentially frigid women of today who have used sex freedom as a mere weapon with which to feed the ego. And this all too common sacrifice of love and the possibility of love on the altar of an ambition that is essentially insatiable, because it is so much of a compulsion, is met by the complementary need of "fair-minded" men to accept the free woman at her word. Hence the cult of pseudo-nobility, what Wyndham Lewis so aptly calls the new "sex-snobbery," which makes an intellectual fetish of "freedom" and abolishes jealousy by a fiat of the will.

The psychological falsity of these attitudes and liberations is manifest enough and leads to a new set of most insidious repressions which owe their origin to the subordination of impulse to reason. It is questionable if these new and hardly recognized repressions, these elaborate maskings of the unconscious by the plausible terminologies of "freedom," of "cumulative richness of experience," of "self-realization," do not lead to an even more profound unhappiness than the normal subordination of impulse to social convention that we hear so much about.

The truth of the matter is that in the life of the emotions one can make too few as well as too many demands, and the life of love is naturally no exception to the rule. Men and women who expect too little of each other, who are too nobly eager to grant each other privileges and self-existences that the unconscious does not really want, invite a whole crop of pathological developments. First of all, the chronic insistence on the notions of freedom and

self-expression is itself contrary to the natural current of the sex life, which flows away from the ego and seeks a realization for the ego which is in a sense destructive of its own claims. Sex as self-realization unconsciously destroys its own object by making of it no more than a tool to a selfish end. There can be no doubt that much modern sex freedom is little more than narcissism. Applied narcissism, in our particular society, is necessarily promiscuity.

A further consequence of an uncritical doctrine of sex freedom is the lack of true psychological intimacy between lovers or between husband and wife. Abstract freedom is poor soil for the growth of love. It leads to an unacknowledged suspicion and watchfulness and a never-satisfied longing which in the end kill off the finer and the more sublimated forms of passion. The modern man seeks to save the situation by analyzing sex attachment into the fulfillment of sex desire plus such intimacy as constant companionship or friendship can give. This is, of course, totally false psychologically. It is merely a feeble synthesis of dissociated elements arrived at by an inadequate analysis. The easy accessibility of the sexes to each other at an early age, the growth of the "pal" spirit between them, with sex itself thrown in as a bribe or as a reward—all this, so far from bringing the sexes together in a finer intimacy, has exactly the opposite effect of leaving them essentially strangers to each other, for they early learn to know just enough to put the more intuitive seeking stupidly to sleep. Is it a wonder that the sexes unconsciously hate each other today with an altogether new and baffling virulence?

In extreme cases—one dreads to acknowledge how appallingly frequent these extreme cases are becoming—the constantly dampened, because never really encouraged, passion between the sexes leads to compensation in the form of homosexuality, which, if we are reliably informed, is definitely on the increase in America. This surely is a strange point of arrival for a gospel of delivery from repression, but it is a perfectly explicable one. Love having been squeezed out of sex, it revenges itself by assuming unnatural forms. The cult of the "naturalness" of homosexuality fools no one but those who need a rationalization of their own problems.

In estimating the significance of the social and psychological currents which are running in the sphere of sex today, it is impor-

tant to do justice to both cultural and personal factors. It is dangerous to ignore either. Our culture of today is not the creation of the moment, but the necessary continuation of the culture of yesterday, with all its values. These values need revision, but they cannot be overthrown by any scientific formula. The intellectuals who declare them dead are very much more at their mercy than they care to know. It is not claimed that all individuals can or should make identical adjustments, but in an atmosphere in which no norms of conduct are reconized and no values are maintained, no man or woman can make a truly satisfactory individual adjustment.

It is peculiarly dangerous in dealing with the sex problem to let pretty verbal analogies do the work of an honest analysis. The problem of jealousy is an excellent illustration of this. Owing to the highly individualistic and possessive philosophy of so much of our life, the image of possessiveness has been plausibly but insidiously transferred to the marital relation, finally to the relation of love itself. Sex jealousy is therefore said to imply possessiveness. As one emancipated young woman once expressed it to me, it would be an insult to either her or her husband to expect fidelity of them. Yet what is more obvious than that jealousy can no more be weeded out of the human heart than the shadows cast by objects can be obliterated by some mechanism that would restore to them an eternal luminosity? Every joy has its sorrow, every value has its frustration, and the lover who is too noble to be jealous has always been justly suspected by mankind of being no lover at all. It is not the province of men and women to declare out of their intellectual pride what emotions they care to sanction as legitimate or admirable. They can only try to be true to their feelings and to accept the consequences of their fulfillment or denial in whatever terms nature sees fit to impose.

The supposed equivalence of sex jealousy to the emotion of resentment at the infringement of one's personal property rights is entirely false. Sex jealousy, in its purest form, is essentially a form of grief, while the combative feeling aroused by theft or other invasion of one's sovereignty is of course nothing but anger. Grief and anger may be intermingled, but only a shallow psychologist will identify them. Perhaps the linguistic evidence is worth something on this point. It is remarkable in how few languages

the concept of sex jealousy is confused with the notion of envy. Our use of the English word "jealous" in two psychologically distinct senses has undoubtedly been responsible for a good deal of loose thinking and faulty analysis. It is an insult to the true lover to interpret his fidelity and expectation of fidelity as possessiveness and to translate the maddening grief of jealousy into the paltry terminology of resentment at the infringement of property rights. These crowning psychological absurdities were reserved for the enlightened mentality of today.

The psychiatrist understands better than anyone else how much we are swayed in the unconscious by obscure but potent symbolisms. There is a certain logic or configurative necessity about these symbolisms that it is very hard to put into words, but which the intuitively-minded feel very keenly. Sex conduct offers singularly potent examples of the importance of such symbolisms and their arrangement in a series of cumulative values. I refer to the general symbolism of human intimacy.

Every normal individual is unconsciously drawn toward or repelled by another individual, even if the overt contact is but brief and superficial. These feelings of intimacy and withdrawal have their symbolisms in gesture and expression, which differ from individual to individual but tend none the less to take typical forms under the influence of social forces. Of necessity, the most potent symbols of intimacy are those that lead to the touching and handling of bodies. To put the matter crudely, we are not in the habit of embracing those that we are indifferent to and of standing frigidly aloof from those that we are psychologically intimate with, unless, of course, there is a conflict that paralyzes expression. Now of all known forms of intimacy among human beings the sex relation is naturally the most far-reaching. It necessarily takes its place in the unconscious series of symbolisms of intimacy as the most valued and final symbol of all. I do not claim that all human beings are equally sensitive to symbolisms of this sort, but there is enough of a psychological common ground in most of us to make it impossible for the normal person to transgress the unformulated laws of symbolic expression beyond a certain point. It is exceedingly likely, it seems to me, that the obscure, though of course unacknowledged, feeling of shame felt by prostitutes and by those who indulge in promiscuity is by no means entirely due to the

fact that they transgress the social code, laying themselves open to a conventional censure. It is likely that this shame is also in large part the resultant of an elusive feeling that a natural scale of values is being transgressed because the expressions which are their symbols are, by implication, arranged in a psychologically impossible sequence. In a deeply symbolic sense, then, the prostitute is "illogical," and her only psychological escape is to refuse to identify herself with her body. And it is no mere accident that so many of the protagonists of sex freedom despise their own bodies.

In sober fact the erotic landscape in contemporary America is by no means as depressing as these observations may lead one to believe. I have wanted rather to point out the psychological fallacies in the contemporary cult of sex freedom and the ultimate implications of those fallacies than to give an accurate description of contemporary sex life. Sex irregularities, while numerous, are not necessarily as indicative as they seem to be of the deeper-lying set of our erotic philosophy. Unless I sadly misread the mores of America, there are many reassuring signs that the reign of so-called Puritan morality is not likely to come to a sudden end even among the sophisticated and that, while the negative elements of that morality are sure to be cast aside by the intelligent and their rigor mitigated by all, its essential core will survive. Europe may laugh and shrug its shoulders but America can be shockingly stubborn on what she feels to be the fundamentals of life. It would be nothing short of a cultural disaster if America as a whole surrendered to continental European feeling and practice. With religion in none too healthy a state and with the æsthetic life rudimentary and imitative, America needs an irrational faith in the value of love and fidelity in love as perhaps no other part of the occidental world needs it today.

The moral atmosphere in America is only superficially similar to that of continental Europe. One of the surest signs of the essential difference in outlook is the rapidly increasing divorce rate. Bewailed by domestic moralists and deplored by our European visitors, the ease of obtaining divorce in America is actually an indication of our restless psychological health. Were the institution of marriage and the family actually divorced in sentiment from

the sphere of sex indulgence, there would be no reason why a tolerance of marital infidelity should not come to be accepted in America, as it has long been in France. But anyone who imagines that America can with a clear conscience settle down to the reasonable and gracious distribution of individual pleasures and familial ceremonies that seems to suit the French genius knows very little about the American temper. The very intellectuals who are clamorous in their determination to "go the limit" are unable in practice to "play the game," for they cannot learn the rules. Do what one will, sex relations in America have a way of calling up romantic images and implications of fidelity that make this country seem a mysterious, an incredible, realm to the emancipated foreigner. Incompatibility of husband and wife of necessity leads more speedily to divorce than in sophisticated Europe—I am leaving Russia out of the picture, for we know too little about the psychological realities of contemporary Russia to speak of it with profit.

Closely connected with this stubborn unwillingness of the typical American to save marriage and the integrity of the family at the cost of erotic honesty is his peculiar unwillingness or inability to make a fine art of sex indulgence. The "kick" of sex freedom in America lies precisely in its being "sin," not an honest way of life. Americans make poor Don Juans. Nor does the graceful and accomplished hetaira of French life seem to flourish on our stubborn soil. Many young women have tried the part but even the most successful of our amateurs in the erotic arts seem compelled by the very nature of the culture in which they have been reared to pay a heavy price. Our intellectual mistresses of sin play a sadly pedantic part, their ardors are in the head rather than in the heart or even the "erogenous zone." To put it bluntly, the "free" woman of sophisticated America, whether poetess or saleslady, has a hard job escaping from the uncomfortable feeling that she is really a safe, and therefore a dishonest, prostitute. The charge seems unreasonable to the mind, but the spirit cannot wholly throw off the imputation. The battle shows in the hard, slightly unfocused, glitter of the eye and in the hollow laugh, and one can watch the gradual deterioration of personality that seems to set in in many of our young women with premature adoption of sophisticated standards. Psychiatrists have often burned their

fingers in this matter and perhaps there is nothing they need to keep more steadily in mind than that in proffering advice in matters of sex they are addressing themselves not merely to intelligence and to desire but to certain obscure and unacknowledged values that cannot be flouted with impunity. If they are of foreign birth and culture, it would be well for them to take a little more seriously some of the "resistances" they encounter and to ponder, on occasion, the possibility that in exploding a personal "complex" they may incidentally be shattering an "ideal." That American men and women coursen on a fare that seems to agree with the sophisticates of the Old World is both a warning and a reason for optimism. It points the way to a reaction of feeling that Europe will not understand.

Americans tend, in the most disconcerting way, to be both realistic and conservative in the matter of sex. That psychological health demands sex satisfaction at a much earlier period than the general postponement of marriage makes possible is coming to be generally recognized. It is clear, however, that a true tolerance for illicit relationships of a promiscuous sort is not likely to become prevalent. Such suggested institutions as the companionate marriage lead one rather to suspect that America is feeling its way toward a loosening of the institutional rigors and responsibilities of marriage by the growth of new types of sex relationship. It is difficult to say just what is likely to emerge from the present period of unrest and experimentation, but one thing seem certain. America will not be a docile pupil of Europe, and the sophisticates of this country who are taken in by the apparently easy solutions of their European brethren, whom they so vainly admire, are likely to find themselves in a strangely unsympathetic clime. That new institutions of an erotic and marital nature are slowly maturing is obvious. It is may belief that it is no less obvious that these institutions, whatever their forms may be, will not mean a surrender to license but will have for their object, however obscurely and indirectly, the saving of love and the perpetuation of the romantic intimacy and of the ideal of fidelity by those who are capable of this intimacy. And it is more likely than not that the average American, for a long time to come, will have the delusion, if it is nothing else, that he is capable of just this experience.

THE ANALYSIS OF PERSONALITY.*

A SURVEY OF PSYCHOLOGISTS' † EXPERIMENTS.

By IVES HENDRICK, M. D.

No problem of modern science is more cogent than the relationship of mental phenomenology to other sciences, and the applicability of methodology learned by the hard experience of centuries to its study. This is the seed from which have flowered the most significant of modern psychiatric controversies. Are the fundamental principles of psychology unique and without analogy in the natural sciences; must their demonstration be dependent on methods, the logic of which is peculiar to themselves? Or, are the laws of induction and hypothesis the methods of demonstration and analysis, and the criteria of validity to which all other sciences proclaim their fealty, applicable to our pampered infant, at whom the older members of the scientific family glance, now with the conscious superiority of the adult, again with wonder and interest at the naive truths embodied in its babbling? Pearl²⁰⁴ shows that, in the development of every science, there first has always been a purely qualitative elucidation, largely descriptive, of the simpler phenomena; and that only later, when the methods of quantitative measurement have been devised, are data obtained from which are derived tenable hypotheses, apparently representing fundamental "natural laws" which the great majority of qualified experts find acceptable.

It is true that qualitative methods of psychological investigation have yet yielded results of negligible importance, and that the significance of their practical applications is trifling when compared to the qualitative revelations of recent years, especially those which expound such mechanisms as symbolism, repression, and dissociation. But this is no proper basis for the assertion that methodo-

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† Throughout this paper the author uses the word "*psychologist*" to distinguish the non-medical worker from the "*psychiatrist*," whose interests are primarily associated with clinical problems.

logical precision is fundamentally and eternally alien to the nature of psychology; that would be a retrospective conclusion, and blind us to the potentialities of the future. The complexity of psychological problems; the difficulties innate in the necessity of using the mind to study the mind; the obstacles to the experimental method; the failure to demonstrate the general relevance of more mature sciences to our own—these tremendous impediments suffice to explain the fact that psychology, even today, has closer affinities with speculative philosophy than with exact science. In our work as *clinicians*, we must at present utilize fully the tools of qualitative psychology and improve them as we can; but, as *scientists*, we must look to the future for an adequate demonstration of principles. A survey of the recent development of psychometric methods justifies the belief that already the scientific era of psychology is on the horizon. Though scarcely born, their practical applications have demonstrated, beyond reasonable doubt, the possibility of applying quantitative and objective methods even to so vague and complex a problem as general intelligence.

Analogy has suggested that personality should be the next phase of psychology to give way to the advance of truly scientific investigation. For, although more difficult, the study of personality presents problems similar, in many ways, to those which have been overcome in the measurements of general intelligence. Neither can be defined with precision; the ultimate components and determinants of both are recondite uncertainties; both are exclusively mental phenomena, precluding the application of data derived from other sciences; and, till recently, the intrusion of subjective elements into the study of intelligence and personality has appeared an unavoidable impediment to their measurement.

In order to learn what the psychologists have so far accomplished in the quantitative and objective study of personality, and what promising methods of attack their preliminary studies have revealed, this review of their work was undertaken. We shall first describe the methods employed in attacking the problem, and the mathematical method of testing the results; then demonstrate the actual application of these techniques by summarizing a few illustrative studies; and finally attempt to estimate the value of this work.

TABULATION METHODS.*

Methods for the systematic measurement of personality traits are of two kinds: first, the tabulation of opinions; and, secondly, techniques designed to give an entirely objective estimate. The former we will now consider.

Methods of tabulation which record the subject's own introspective judgments we shall refer to as *questionnaires*; and those which serve as a medium of expressing judgments about the subject as *ratings*. Both methods utilize essentially the same techniques, and present similar imperfections.

The methods of tabulation are essentially those which ask a question, or those which make a statement regarding which the examinee expresses a judgment. Occasionally, the form of the response is left entirely to the choice of the rater; but these give no adequate data for a comparison of the judgments of several raters.

Questionnaires and rating scales differ chiefly in the scoring techniques. The simplest requires a "yes" or "no" response to questions. Such replies, however, have been found very difficult to evaluate; and, since its inception in the Scott Company Laboratories,¹⁰³ the raters have more often been asked to indicate their opinion by checking a point on a linear scale. A better technique is the combination of this scale with phraseology. Thus, Yoakum and Manson¹⁰⁴ labelled successive graduations on their scale: "marked presence above ordinary," "distinct," "doubtful," "very," "moderately," and "doubtful efficiency below ordinary." This is generally preferable to quantitative estimates expressed by lettered grades, or by encircling such symbols as +!, +, +?, -?, -, -!.

The "*order of merit*" method, when applicable, is believed by some to obviate many technical defects; when this is used, the rater indicates the subject's rank, relative to the trait, in a real group (such as the members of a college class), or an hypothetical group of a specified number; or he may arrange the subjects in the order corresponding to the degree in which each seems to manifest a given trait. Some investigators, especially Hughes,¹⁰⁵ have empha-

* We shall confine our review largely to studies of *tendencies* which are associated with the emotions, motives, and social reactions of the individual. The measurement of *abilities* is primarily the interest of the vocational psychologist.

sized the opinion that the value of a rating system is greatly improved if the statements are phrased in behavioristic terms; for example, instead of asking, "Is the subject honest?" an hypothetical situation is given, and the rater checks what he believes would be the subject's actual response. In this method, the scoring is done by the selection of "multiple choices," as in some other types of questionnaire: thus, the rater would underscore that one of the several statements which seems most appropriately to characterize the subject's probable reactions.

OBJECTIVE METHODS.

The primary purpose of trait studies is the development of simple, objective tests which will demonstrate whether a given individual possesses or lacks a certain trait, and in what degree. Such a technique, which will exclude subjective factors, we could use to control and supplement our clinical studies; it would be a tool whose product would conform to the most rigid canons of science. The bulk of these tests belong to the group which May and Hartshorn¹⁷ describe as *experimental situations with experimentally controlled responses*.

A few of this type utilize a physiological technique. Thus, Travis¹⁸ in order to determine whether a patient has "suggestible" or "negativistic" qualities (which, oddly enough, he regards as the opposite poles of the same general function) produces a state of revery by verbal direction and the fixation of the subject's gaze on a luminous crystal, and measures the trait by the degree to which the auditory threshold to a sound of variable intensity is raised or lowered.

The purely psychological methods are more numerous and varied. They may utilize special devices, pen and paper, or be entirely verbal in character. They may be simple observations of the behavior of the subject when presented by an experimental problem, as Morgan and Hull's¹⁹ measurement of the "persistence" which the subject shows when attempting to solve difficult and impossible maze problems. Others utilize expressions of opinion, as when Filter²⁰ judges "assurance" by the subject's belief or disbelief that he can draw correctly the design made by folding a paper; or when Gilliland and Burke²¹ test "sociality" by the sub-

ject's ability to describe and recognize portraits. The criterion may be the degree of accomplishment: thus, Moore and Gilliland²¹ measure "aggressiveness" by the subject's ability to keep his eyes fixed on an object while performing an arithmetical problem of increasing difficulty; and Fernald²² judges the "achievement capacity" by the time an individual can stand on his toes, and has shown that scores of normal and delinquent boys differ greatly.

The commonest, and, on the whole, most satisfactory, tests, however, are those which score in various ways the responses to words, phrases, or sentences. Thus, Kohs²³ tests ethical discrimination by requiring the subject to indicate his judgment of the degree of punishment appropriate to a specified offense by underlining "praise," "nothing," "scold," "jail," or "prison," and Brotmarkle²⁴ estimates "basic moral principle" by counting the subject's deviation from the norm in arranging a list of ethical words according to their "comparative value."

Other tests are based on somewhat different principles. Voelker²⁵ has utilized a *natural controlled situation with a natural undirected response* when he observes the behavior of the subject when given an excess of change at a store. Folsom's²⁶ test of "instinctive tendencies" by measuring the persuasiveness of advertisements illustrates a *natural controlled situation with natural directed response*; while Landis' tests of various emotions,²⁷ in which the subject's unguided reactions to a series of laboratory stimuli are observed, exemplifies an *experimentally controlled situation with a natural undirected response*.

RELIABILITY AND VALIDITY.

Reliability and validity are the two considerations which determine the scientific value of any test. May and Hartshorne,²⁸ conforming to generally accepted terminology, define *reliability* as the answer to the question: "Will the same individuals always respond in the same way to these test situations?" Reliability is, therefore, essentially the demonstration that a test will measure the same thing and produce the same results under identical conditions, while the question of what it measures is not asked.

Validity, on the other hand, is the proved fact that a test actually measures what it purports to measure.

The *technique of demonstrating reliability or validity* is essentially the statistical proof that two or more significant variables are correlated in a way that cannot be explained as the result of chance. A series of these relationships are expressed in a mathematical formula, known as the "*correlation coefficient*." If chance alone will account for the distribution of the test scores, this coefficient will be 0; but if there is present some factor which makes it inevitable that one group of results will always appear when the other group occurs, the coefficient will be +1.00; whereas -1.00 will indicate the presence of some factor which operates on both series, but makes it impossible for the same result to occur at the same time in both. In personality studies, a coefficient of .40 is generally regarded as suggestive; .60 as showing a probable relationship; and .80 as very strong evidence that the results are *not due in any significant degree to chance alone*.*

Reliability may be estimated by determining the correlation coefficient of: (1) scores made independently by several homogenous groups; (2) the scores of the same subjects when first tested and when retested; (3) the results in one-half of the test, and the results by the same group in the other half, treating each half as though it were a separate unit. Less satisfactory attempts to establish reliability by correlations between test scores and sex, special training, and "qualified opinion" have been made.

Both May and Hartshorne²⁷ and Roback²⁸ mention that "age gradation," or the correlation of scores with chronological age, can also be utilized as an index of validity. Roback's contention that this method is generally inapplicable because it "taps knowledge and experience rather than character or conduct," is a wise warning; but there seems every reason to agree with Wells²⁹ that the development of certain personality traits is progressive from infancy to maturity, and parallels the growth of intelligence. Furfey³⁰ has interpreted his rating scale responses in terms of "developmental age," which "denotes gradually increasing maturity of the child's personality, . . . shows negligible correlation with

* Let us not overlook, however, the fact that a method, even though it is mathematical, may be fallacious. Boring's³¹ excellent paper makes clear that the assumption should not generally be made that the normal distribution of biological and mental phenomena necessarily conforms to the Gaussian curve (as is often assumed by statisticians).

the M. A., but significant correlations with physical measurements." We, however, do not feel that such a demonstration of age gradation, as is sometimes claimed by other students, is an index of validity. And, indeed, Binet, whose application of the principle to intelligence has been so successful, did not use it to prove what his own tests actually measured. But it is of great value in studying reliability, in that a close correlation of test scores and age levels must presumably indicate the test is actually measuring something which develops or recedes progressively with age. Furthermore, when it is applicable, *it is the best method which has been devised for establishing norms.*

Many of the more careful studies of rating scales show high reliabilities.

Thus Hughes⁷⁷ retesting 3000 students after a year by a different group of raters, found a correlation of .85 between the two ratings; and Mendenhall⁷⁸ demonstrated a reliability of .92. Such high correlations undoubtedly indicate that the rating scale is a good index of the impression the subject makes upon that class of individuals to whom the raters belong; but they do not necessarily indicate what would be the *impression on a different group*, nor do they give any adequate clue to the subjective aspects of the personality. In fact, G. B. Watson⁷⁹ has definitely shown that the reliability indexes of ratings made by different kinds of raters, are definitely lower than those by raters whose training and association with the subjects is similar. This also suggests that unanimity of rating cannot be accepted as definite proof of reliability. Furthermore, the tendency of some investigators to believe that a *conviction of accuracy* by the raters is any indication of their qualifications is often unjustifiable. If Hughes, for example,⁷⁷ holds a private opinion that the certainty expressed by teachers in their own judgments gives a better clue to the teacher's than to the subject's personality, he gives no hint of it in his publications. There is also a tendency to overlook the fact that high reliabilities for a complete group prove little as to reliability when the tabulation is applied to the individual. Symonds⁷⁸ demonstrates that a correlation of .70 exists between "generalness" and the items considered "important" in the Upton-Chassel scale; and F. H. and G. W. Allport's⁸⁰ conclusion that in their study the reliability is much higher for important traits demonstrates the same fallacy. Furfey⁸¹ shows that reliability of a general trait is raised when the trait is subdivided and the ratings of the subdivision summed.

Reliability estimates of the tests are not generally so conclusive as those of the tabulation methods, but in a few cases they are quite convincing.

Travis,¹²⁷ for example, has shown that under experimental conditions the auditory threshold is always raised in schizophrenia, and lowered in cases of hysteria; so consistent a result as this must indicate that the test is a measure of some factor which differentiates the two groups, even though the contention that this factor is "suggestibility" is quite unproven. Woodrow's¹²⁸ retests of children's traits by his "picture reference" method showed a correlation between first and second examinations of .79. Pressey's¹²⁹ and Chamber's¹³⁰ work (to be discussed later) show definitely that laboratory methods may be devised to measure quite accurately functions of the personality, although exactly what the functions are is extremely difficult to determine. These demonstrations, and others, show clearly that some applications of the laboratory method may be relied upon to measure some function of the individual which it is purely speculative and often impossible to define. Moreover, the multitude of failures to devise reliable tests are of no significance in comparison to those successful achievements which point the way to still more thorough work.

The demonstrations of validity have been less convincing than those of reliability.

In the tabulation of traits, much evidence has been accumulated to support Cattell's astute observation³² that traits on which the raters agree represent the individual's reaction to objective things, but disagreements are very common when the judgments represent the subjects' reaction to people. Certainly some traits are much more satisfactorily judged than others, as originally shown by Norsworthy.³³ Yoakum and Manson¹³⁴ have performed a careful experiment which corroborates Hollingsworth's statement that raters overemphasize pleasing traits; and Wyman¹³⁵ proves the tendency to generosity by raters. "*The halo error*," whereby one tends to apply a favorable or unfavorable judgment of the total personality to the rating of each trait is widely recognized, and has been carefully studied by Thorndike.¹³⁶ Hughes⁶⁶ offers the valuable suggestion that this may be greatly minimized if each trait is rated for the whole group, instead of all the traits of one individual being considered at the same time.

We feel that the best techniques have enabled certain investigators to obtain by questionnaires and ratings fairly accurate estimates of the impression created by an individual on his fellows, but very little trustworthy information about other factors which are of special interest to the psychiatrist. Nevertheless, we must not overlook any feature of potential value; because it is chiefly by comparison with ratings that psychologists attempt to demonstrate the validity of their tests. Thus, G. W. Allport³ says: "Notwithstanding the dangers and difficulties encountered in devising and employing rating scales, we are forced to recognize that the only method of judging the value of a test is by its correlation with ratings."

Wells¹²⁹ wisely warns us: "It is not only dangerous to check tests against unreliable ratings; but to test them against reliable ratings only gives false emphasis by testing those traits which are most apparent."

There is increasing reiteration of the recommendation of Symonds¹³⁴ and others, that we should first ignore validity, and concentrate our efforts on obtaining tests which definitely measure some factor consistently, before we attempt to designate what the factor is. The recognition of this principle has been of primary importance in establishing psychometrics on a scientific basis; and the success in this field has greatly influenced the students of personality.

A few of the tests do correlate well with ratings of the trait they purport to measure, for example, Morgan and Hull's¹³⁴ maze tests for persistence, and Shuttleworth's¹³¹ test of "money mindedness" (the latter, however, correlates only the responses to ratings in which there has been little disagreement among the raters). Travis¹³⁰ and a few others have established validity by the method of differentiation, in which only the two extremes of the test scores are compared with other criteria; but May and Hartshorne¹⁷ reminds us of the difficulty of segregating two homogenous groups, and the failure of the method to indicate the validity of scores in the middle ranges. Occasionally, as in Trow's¹³⁰ "confidence" test, validation by using an actual sample of the situation is applicable. Yet we must always remember that although the 100 yard dash is a fair sample of a person's running speed, the most sluggish on the race course may prove the fastest when escaping a bull; this is the question left unanswered by all laboratory investigations. Sometimes tests are compared with others which purport to measure the same trait. Thus Filter,⁴⁹ using a battery of tests claimed to measure "speed of decision," found intercorrelations of .33 to .66; and Cady's³³ development of Voelker's tests of "moral incorrigibility" showed intercorrelations of .59, .51, and .63; as a rule, these comparisons of different tests give much lower indexes than this, or are unpublished.

When the results of tests are correlated with psychometric scores—Moore and Gilliland's Aggressiveness Test⁵¹ for example—it is sometimes shown that the supposed personality test really measures the same factors as the intelligence test. Similar studies of other tests, such as Woodrow's,¹⁴⁶ however, have shown conclusively that, whatever they measure, it is not intelligence.

SPECIMENS OF QUESTIONNAIRES AND RATING SCALES.

The first systematic questionnaire was the *Columbia Freshman Test*, devised by Catell³² in 1894. That best known among psychi-

atrists is the one published by *Hoch and Amsden*⁶¹ in 1913, and later revised by Amsden.⁶² This was admirably designed to fit the authors' clinical purpose of securing a better anamnesis and a more precise delineation of the pre-psychotic personality. It emphasizes especially the individual's affective reactions, in order to "indicate reactional assets and liabilities in such ways that an insight is gained into the probable general course of action he would, under given circumstances, follow." Its chief value to-day is due to the excellent phraseology, the comprehensiveness of the questions, and their systematic arrangement, and we can hardly overestimate its influence in focusing the attention of psychiatrists on personality. But it differs from those schemata which are more typical of our present interest, in that the personality is not primarily judged by the answers to the questions; the questionnaire serves merely as an instrument for the psychiatrist to express systematically those mature conclusions which result from whatever methods of clinical examination he may use.

*Wells*¹⁰⁴ in 1914 published a study of personalities using an adaptation of the Hoch-Amsden questionnaire which, in some respects, is an improvement: it is more concise, eliminates some duplications, and attempts a quantitative method of scoring, by offering a choice of six graded symbols.

The *Hughes' rating scale*^{67, 68, 69} gives a suggestive list of 22 general and behavioristically phrased traits, systematically grouped; originally each trait was scored on a scale of 200 points; later the rater was asked to recall individuals who manifested the trait in the highest, lowest, and medium degree and to judge the subject accordingly; and finally the graphic scale was adopted. It has been applied to a group of 3000 students over a period of three years.

One of the most thorough tabulation studies is that of *Terman's associates*.¹⁰⁵ Approximately 600 gifted, and 500 unselected children were rated by one parent and one teacher for 25 traits; the scoring was on a graphic scale with descriptive phraseology. He found that there is a striking agreement of parents and teachers.

*Freyd's questionnaire*⁴⁰ is an excellent example of a purely pragmatic study, though limited in its scope to a simple vocational problem. The subjects were 30 seniors in a course in industries and a similar class in life insurance salesmanship; each indicated which of five degrees of liking and disliking he felt for various occupations

and traits; those items checked most often by each group were determined and each subject was given a score which is the sum of +1's for responses checked most often by the salesman group, and -1 for those checked most often by the industrial group. The results indicate that the questionnaire sharply defined the two groups and, therefore, can be regarded as an indication of social inclination or mechanical inclination. Hubbard⁶⁶ made a careful study of retests with the Freyd questionnaire and its reliability coefficients; she arrived at the conservative conclusion that the results justify its further use. Heidbreder⁶⁷ has used a portion of this questionnaire in a thorough study of 200 psychology students, scoring them according to what she assumed in each item to be an "introvert" or an "extravert" response to that item. This was done by each subject and by two of her associates. Determination of reliability by the method of differentiation, in which the 25 who had the highest so-called "introvert" score and the 25 with the highest "extravert" score, showed a surprising agreement between the judgments of the subject and his raters. This high reliability is no less interesting because of the author's somewhat naive interpretation of extraversion and introversion as a static personality trait, rather than as a highly variable and complex mechanism.*

The psychiatrist will be specially interested in the extensive use of the questionnaire by Peck and Wells, and Wells,^{105, 112, 113, 114} for the study of *psycho-sexuality* in young college men and young graduates. Wells¹¹⁴ concludes that the questionnaire may be of use for judging individuals and for establishing norms when the questions deal with objective biological facts, whereas questions requiring subjective personality interpretations are of negligible value.

THE DOWNEY WILL-TEMPERAMENT TEST.

The Downey tests⁷⁷ are the best known and most carefully studied of all laboratory devices for objective study of the personality. May⁷⁸ has published an excellent review of the extensive studies by

* This criticism applies to *most* of the studies of "introversion" and "extroversion" by lay psychologists. To the clinician, their interpretation of this mechanism *usually* appears so over-simplified and blatantly pedantic as to deprive it of any significance. The paper of E. S. Conklin⁸² is a striking exception; he has obviously digested the later exposition of this principle by Jung.⁷⁹

Downey herself and by many other workers. He points out that Downey's underlying conception is that fundamental behavior patterns are revealed in certain skilled motor performances; an individual's "temperament appears to be determined by the readiness with which the motor discharge which initiates movement occurs in the nervous system and the degree to which it stimulates consciousness." They are designed to predict the general nature of an individual's reactions rather than the response in a given situation. No claim is made that the tests measure any specific trait, but the author feels that they do measure "innate tendencies." The technique of the more promising units of the battery is as follows: (1) the average time taken in writing "United States of America" on two occasions; (2) the ratio of the speed of natural handwriting to the fastest writing of which the subject is capable; (3) the degree of success manifested in disguising handwriting and in copying a model; (4) the time taken to check those items in a list of traits which the subject thinks he possesses; (5) "motor impulsion" is measured by success in these tasks when distractions, such as closing the eyes or counting 3's aloud, are imposed; and the persistence with which the subject will maintain an opinion when contradicted; (6) "the carefulness of reaction" is estimated from the slowness with which the subject is able to write "United States of America," his ability to copy a model, and to write a phrase in a very limited area. The author has also devised a method of expressing her results in graphic form, which she calls the "will-profile." She²⁸ believes that there is a correlation between her will-temperament patterns and Jung's introvert and extrovert mechanisms, and says: "Speed of movement and decision, freedom from load and flexibility constitute together a group of will-temperament tests which, when scored high, suggest the typical extravert; just as failure to make average scores on them suggest the introvert." She has also shown that dementia præcox cases run very low scores. Her conscientiousness in exposing its shortcomings is an example which too few other experimenters have emulated. She herself has carefully shown that the reliability coefficients are discouragingly low, and validity indexes are even less satisfactory; while Collins²⁹ points out that the interpretation is not sufficiently objective, because too much latitude is given the examiner in scor-

ing. But the possibilities suggested by these thorough studies should stimulate many valuable developments.

KENT-ROSANOFF TEST.

Probably no psychological test has been more successful than the Kent-Rosanoff test,¹⁰ of which Wells¹⁰⁰ gives an excellent summary. It is essentially a quantitative application of Jung's word-association technique; the unique feature is the establishment of norms by the tabulation of the frequency of response of 1000 people to a selected list of words. The scoring is based upon the number of associations of the subject which differ from these empirical standards. In this way the "individuality" and "egocentricity" are determined, in addition to the usual detection of complex indicators by such familiar phenomena as delayed reaction time, type of response, emotional behavior, perseveration, and defective reproduction. The test is, therefore, strictly a test of traits, but also a test of mechanisms.

THE WOODWORTH QUESTIONNAIRE.

Despite its name, the Woodworth questionnaire⁴⁴ is essentially one of the objective devices in which the subject's verbal responses determine the score, rather than a tabulation of opinions. Its original form, devised to detect army recruits in need of psychiatric examination, requires "Yes" or "No" responses to questions regarding the patient's psychological reactions. Those with definitely different responses than the group norms were considered "emotionally unstable." The results were claimed to be of definite diagnostic significance, the answers of groups of abnormal subjects overlapping very slightly those of the normal. Mathews⁷⁸ later revised it for use with children; and Laird⁷⁹ supplanted the Yes-No response with a graphic rating scale. The latter states it is now being used in a dozen colleges; that responses in the upper quartile of the scale have proved useful indicators of cases in need of mental hygiene; and that from the responses in the upper half, it is believed that norms indicating vocational aptitudes can be established.

PRESSEY X-O TESTS.

Pressey's "X-O test"^{100, 110} is another promising and carefully studied psychological test. Originally published in 1919, its

revisions have led to a form which presents four groups of 125 words, of supposed emotional significance. In the first list, the subject underlines those words which are most unpleasant to him, and indicates in each of the lines into which the group is subdivided, the word which is most unpleasant. In the second group, the subject indicates the words he likes, and that one in each line he most likes. In the third group he designates the words he considers ethically wrong, and the one in each line he considers most wrong; and in the fourth, the subject indicates those words which worry him and those that most worry him. Two scores are determined: the first, by enumerating the total number of words underlined, is called the "total affectivity"; the second, by determining the total of those words which deviate from well-established norms is labelled "the total idiosyncrasy." The standards have largely been determined by testing large groups of university students. These indicate the number of words 25%, 50% and 75%, respectively, of normal adults will cross out in the whole test, and in each of the four parts. Similar percentile norms have been established for the "idiosyncrasy scores"; and for the normal frequency of positive responses to each word. It seems reasonable to accept the opinion of those who have used it that it is a test of emotional factors; but because of there being no other adequate criterion for comparison, it cannot be proven exactly what aspects of emotional psychology the test actually measures. But Bond¹⁰ in a comparison of the scores of 175 negro college students with Pressey's norms for white students, shows very clearly that whites make definitely higher "total affectivity" scores, while their "idiosyncrasy scores" are also slightly greater. He concludes that "if the test be a genuine measurement of emotional susceptibility, the results constitute a denial of popular opinion, that the negro is more emotional." Guilford¹¹ demonstrated that in tests of 76 criminals, the Pressey idiosyncrasy scores tended to be higher, that there were more significant responses to "disgust" and "fear" stimuli and fewer to "sexual." The application of the test to psychotics has unfortunately been limited to Olsen's¹⁰⁰ unpublished study of 24 subjects at the Manhattan State Hospital. It would be entirely erroneous for us to infer that "total affectivity" and "idiosyncrasy scores" are much more than convenient and euphonious labels. Pressey himself disclaims any certain intimation of the exact traits or mechanisms the test does measure, and

warns us that the total scores are the blurred results of a number of factors, but advocates that portions of the test be utilized in various ways for the investigation of emotional and characterology problems. He has illustrated such an application by the comparison of 29 students receiving "warnings" in college courses with 77 who had passed. He determined the 10 words crossed out in each of the four tests by the largest proportion of each group. The differential score for each subject was the number of those words favored by the "warned" group and indicated by this individual, minus those favored by the "unwarned." The results show that a considerable proportion of the differential scores of the two groups did not overlap, thus indicating the strong probability that collegiate failure could often be predicted by this method. The significance of this result is shown by its definite superiority to the Army Alpha psychometric test; for the correlation of the Pressey differential score with the college grades was .58, that of the Alpha only .37. Chambers²⁷ clearly demonstrates that it prognosticates collegiate success at least as well as the intelligence quotient, and Bond²⁸ has shown that the correlation of Pressey and psychometric tests is only .23.

Perhaps the most interesting development in quantitative estimates of personality factors, is Chambers'²⁹ work in establishing age norms for the Pressey tests. In a preliminary study of 362 schoolboys he determined the most frequent reactions of those in 6th and 8th grades, and those in 10th and 12th grades, respectively. Those 94 words which members of one group marked 15% more frequently than members of the other group were used as a "differential unit." The "net differential score" for each person was the number of responses which the older group made more frequently, minus the number of differential words marked by the younger group. This was determined for the members of alternate grades from the fourth to the second year college; and showed a definite and consistent differentiation. The negligible amount of skewing in a line indicating the scores of each grade is the most convincing evidence that Chambers has actually demonstrated a method of estimating some unknown elements whose development in the individual is chronologically progressive. It may be possible to confirm his belief that "the change in median from grade to grade should allow of the diagnosis of maladjustments in person-

ality and emotional makeup." Thus, Chambers himself had shown, by comparison of the disciplinary and non-disciplinary cases, that a score differing by 20 points from the median is suggestive evidence of maladjustment.

CHARACTER EDUCATION INQUIRY.

Hartshorne and May¹¹ are now conducting an extensive investigation at Teachers' College. The sixteen tests which they have tried are all of the verbal response type. Answers to stimuli are of various kinds in different tests: those which designate similars and opposites, multiple choices, choice of "True" and "False," or "Yes" and "No." For example, in one test the subject is required to choose which of several stated possibilities would be his reaction to a given situation; in another, he is asked whether a specified act is cheating, lying, stealing, or just; in a third, statements regarding manners are made, and the subject must indicate whether it is true or false. This trial battery of tests was given to New York school children in grades 5 to 8. The smallest number taking any one test was 273, the largest 1599. The results were then scrupulously analyzed. Reliability of various units was shown to be as high as the reliability of intelligence tests, by dividing each test into two parts, and correlating these as though they were different tests. No adequate method of validation was devised, but by correlating each unit with the score on all tests, the investigators ascertained "what might be expected of each test if a measure of whatever it measures were available." Correlations with psychometric tests proved that intelligence was an important factor in determining the scores of individual units and of the whole test, but the authors conclude there is sufficient evidence that something besides intelligence is being measured to justify further work.

Those units and those parts of a unit with too high intercorrelations were eliminated, for they would appear to measure the same thing. Those with ambiguous answers, with 90% agreement on the responses, with very high correlations with intelligence, and with no independent value were likewise excluded, and from the remaining units two new test forms were devised. One interesting result of further experiments with this revised form was obtained by giving it to associates of the pupils; and it was conclusively

shown that the moral code of the child corresponded quite closely with his parents, less closely with his friends, was influenced a little by club leaders, and not at all by Sunday school teachers. There was little evidence that the development of moral knowledge is a function of the chronological age level. No claim is made that a suitable criterion of validity has been found, and that tests which can be considered trustworthy indicators of any definite function have yet been developed. As an example of scientific precision, however, and as a lesson in the application of mathematics to experimental data, their work is of profound interest. The complete empiricism of their work, the lack of any major assumption, and their subordination of theory to experimental results, constitute an instructive lesson.

UNIVERSITY OF IOWA STUDIES.

Another interesting example of the verbal method, similar in some respects to the Pressey test, is found in a series of studies done at the University of Iowa. Hart²⁷ first reported a test for "social attitudes and interests," in which the subject indicated a positive, negative, or neutral response, according to whether he liked, favored, or thought true, each of 250 verbal stimuli. He was also asked to encircle a "Yes" or "No," indicating whether he liked the word, phrase, or sentence; to underline once the five words of each list of 12 to 15 items which he felt more strongly about, and to underline twice that one which he felt most strongly about. Cheating was controlled by repeating the test with instructions to answer it as though the subject were qualifying for a job. The tests were compared with ratings of 3 to 9 associates of the subject's "money-interest." Validation by differentiation was done; test results were correlated with the forty-one subjects whose ratings most definitely indicated their "money-interest." The group rated as "definitely money-minded" reacted more strongly to five of the stimuli, and less strongly to six, and the correlation coefficient of 75 of the stimuli with the selected ratings was .95.

Travis²⁸ then modified the method, giving 100 sentences, each of which was designed to present positive and negative aspects of 50 traits. From those stimuli to which group responses were specially clear-cut, Forms A and B were prepared. In Form A the subject ranked 10 statements in the order of his preference; in

Form B, he indicated whether he liked a statement or disliked it, and which he most liked and disliked. Each test was scored by deviations from the average. The reliability was high; retests of Form A giving a coefficient of .94, and a correlation of Form A with Form B, a coefficient of .75. To test its validity, the judgments of 20 associates of each of three subjects, and the questionnaire of Morgan were used; each of these gave a correlation of less than .19 and was discarded. Psychiatric analysis of histories, however, gave a fair correlation, and this was believed to be a good indication of the validity of the test.

Shuttleworth¹²¹ in applying this test, selected those subjects whose ratings showed the greatest agreement (but the agreement by raters is no certain indication of the accuracy of the estimate of the trait). Travis was still more naive; after failing to establish validity by three methods, he discarded them as futile, but accepted the criterion, namely, psychiatric judgment, the correlations of which, with his results, were highest. In other words, he used the test to control the control; the control which agreed best with the test was concluded to be, for that reason, the best control. Furthermore, his material was carefully selected for its trait consistency and his conclusions are based on a selection of cases which gave the best results. But though his reasoning is fallacious, the assumption may be true that psychiatric opinion is a better control than were the others.

WYMAN'S TRAIT TEST.

An excellent piece of work has been done by Wyman as part of Terman's "Genetic Studies of Genius."¹²² She adapted a variation of the word-association technique, in order to test three traits, "intellectual interest," "social interest," and "activity interest." Extensive preliminary studies led to the construction of two tests, each containing 60 word stimuli. An intensive study was made of teachers' and parents' ratings and the ranking of various groups in the order of which each trait was manifested. From this data, she constructed tables which indicate which of the hundreds of responses to each stimulus indicated "intellectual interest," "social interest," or "activity interest." High reliabilities have been proven by many correlations; for example, A test and B test give inter-correlations of .80 and .90. Validity has not been so conclusively

shown, the average coefficients being for "intellectual interest" .65; for "social interest" .50; and for "activity interest" .31. But there is ample justification for the assertion that the test gives a good estimate of such inclusive groups as the 689 gifted and 602 unselected school children she was studying, although its application to the individual is not so dependable. For thoroughness and attention to detail in devising and utilizing this test, Wyman's work far surpasses all other studies.

RECAPITULATION.

A critical survey of 147 papers, most of which report experiments in rating or testing personality traits, made chiefly by American psychologists during the last ten years, tends to discourage the notion that any satisfactory instrument for objective personality study has yet been devised. Although many of the most capable and conscientious students of psychology have applied themselves to this problem, we are unable to point to any one outstanding success which appears to open new vistas of scientific investigation. We cannot indicate one effort which might possibly enable the student of psychiatry to make a precise and accurate description of some aspect of personality that would be more trustworthy than the more or less crude methods of experienced clinical description on which psychiatrists now rely.

The psychologists themselves have indicated many of the obstacles which must be overcome if trait testing is to be successful. G. W. Allport³ (and elsewhere) repeatedly and emphatically reminds us that personality is much more than a sum totality of its components, that a compendium of the traits misses the essential element, the "integration" or the interrelationship of these factors. We agree that the broader and more complex aspects of personality "integration" cannot be ignored. Yet it seems more constructive to limit the scope of some studies to the simpler aspects of the problem, in order to avoid confusion and to facilitate precise demonstration. To evaluate the interrelationship of traits before one can estimate the traits themselves, seems as formidable an undertaking as the synthesis of a pie without pumpkin, sugar and flour. But their proposition that all constructive personality study must be

based upon sympathy, and intuitive apprehension of the "form-quality" of a human being would seem to imply that all objective study is futile.

But the most serious defect in these studies has been little discussed. This formidable gap in the methodology is the failure to devise any adequate criterion for estimating the validity of a trait test. Most tests depend upon single or group ratings of the subjects for a criterion of its success in measuring what it purports to measure; and these ratings are generally made by people such as friends, teachers, or lay psychologists, who have had no intensive training in personality examination. If nothing better than personal opinion be available for evaluating these tests, at least let us utilize the most trustworthy opinion. Few people have the opportunity of the psychiatrist to judge all aspects of an individual, and to distinguish what he is from what he seems to be. No psychiatrist can accept the judgments of school-fellows and teachers as an adequate estimate. It is not that the psychiatrist has delusions of infallibility, not that he is blind to the guesswork he practices and the uncertainty of the fundamental principles which constitute his major premises. But his lifework has consisted of dealing with the inner lives—the real natures—of his patients; and this experience has brought home to him how thin but impenetrable is the veneer which each of us presents to his fellows as the real man. Many psychologists, it is true, are familiar with psychiatric viewpoints expressed in books and in journals, but they do not grasp their full significance, because they are not clinicians, because they do not deal in their every day work with the vital problems of human nature. Their position is that of the physician whose knowledge is derived from laboratory and text books alone. Consequently, their work, taken as a whole, neglects the fundamental rôles of unconscious motives and rationalization; of conflict and compensation. It is much to be regretted that no better criterion of tests whose aim is objectivity, than the judgment of experienced psychiatrists is available. But this appears to be the case; and it is unfortunate that with rare exceptions—Travis²⁸ for example—their skill has not been utilized in validating those tests whose reliability is high. Psychiatric judgment is a criterion which the deviser of personality tests should utilize.

The psychiatrist, however, has still more to learn from the psychologist. He should give heed to psychological methodology; and perchance he may find applications to his own field which will enable him to replace clinical impressions with indisputable facts; subjectively toned observations with objective data; qualitative notions with measurable units. His ultimate goal, which is to establish fundamental "laws" of the human mind, based upon indisputable and verified observations, enabling him to predict how an individual will react under given conditions, still appears a visionary ideal of a scientific Utopia. But let us not despise pioneer efforts to achieve this ideal in any little nook of personality study. Though no single study we have discussed appears to mark a milestone in psychological procedure, the fact that this work is practically in its first decade, that it has stimulated the interest of so many trained workers, makes the total contribution valuable. And especially impressive is the precision of method which permits a verification or refutation of observations by other workers, which is judged by mathematical standards, which utilizes units which enable an exact comparison of the observations on each case of a group—these features represent a scientific standard which students in psychiatry may well be proud to emulate.

We believe that eventually—perhaps in our own generation, perhaps in the distant future—many aspects of psychiatry will be clarified by quantitative and objective techniques. It would seem that the personality offers at present the best field for preliminary attempts to blaze the trail. We cannot, at first, expect these elementary efforts to reveal secrets which have been hidden through the ages; but while we continue to apply our qualitative principles in the practical work of case treatment, let us not neglect any methods which may hold a promise of increased exactitude. When the viewpoint and the experience of psychiatrists, and the methods and zest for scientific precision of psychologists shall be mated, the birth of scientific psychiatry will be imminent.

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The following is a selected list of the more important titles on personality rating and testing published prior to January 1, 1928. Each of a selected group of papers whose study will give the student a comprehensive conception of the subject is indicated by an

asterisk (*). The author has attempted in this way to suggest a reading course which will give a good idea of a variety of methods and points of view, and avoid excessive duplication. No attempted selection on a basis of merit alone is therefore implied. Those papers specifically mentioned in this review are indicated by a dagger (†); the others cited in the bibliography have also been studied and have contributed materially to our total impression of the work. A very comprehensive bibliography has been published by Manson,¹⁴ and a shorter one by May and Hartshorne¹⁵ is also excellent. Very few studies of personality tests have been made, except in America. The interest in the subject has increased so rapidly, however, that very recent publications are of prime importance, and any bibliography is soon out of date. Books by Wells¹⁶ and Roback¹⁷ contain chapters which give excellent summaries of studies in personality testing; and the review by May and Hartshorne¹⁸ is very well organized and comprehensive. A brief, simplified explanation of the determination of correlation coefficients appears in Hollingworth's "Vocational Psychology."¹⁹

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THE PSYCHÆSTHENIC REACTION.*

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The large group of symptoms, which collectively are termed the psychæsthenic reaction, are too well known to require more than passing mention. To the French we owe the term, *folie de doute*, which in itself is quite descriptive of one of the main phases of the condition. Pierre Janet classically describes the condition as follows: "Psychæsthenia is a form of mental depression characterized by the lowering of the psychological tension, by the diminution of the functions which permit action on reality and perception of the real, by the substitution of inferior and exaggerated operations under the form of doubts, agitations, anguish and by obsessing ideas which express the preceding troubles and which present themselves the same characters." White in his "Mechanisms of Character Formation" further elaborates this definition by saying "it is the strange, the not-understood, the mysterious of which we are afraid and so are accounted for the states of fear and anguish."

For practical purposes the large and complex group of symptoms to which Janet gave the term "Psychæsthenia" proved to be too unwieldy and inelastic, and undoubtedly his grouping contained reactions which should be identified as anxiety neuroses, neurasthenias, hysteric reactions and schizophrenias. For that matter, it is recognized that in many instances the line of demarcation between psychæsthenic and schizophrenic reactions is a finely drawn one, and often impossible of accurate separation. One of the symptoms described by Janet, that of obsessing ideas, may be considered as perhaps the commonest manifestation of psychæsthenic reaction of compulsion or obsession neurosis.

These patients show invariably the presence of certain compulsive tendencies. Apparently against their will and without any adequate reason patients are forced to do things in a definite

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routine or stereotyped way, or to think certain thoughts. The feeling of compulsion increases until it is yielded to, then follows a period of calm, of varying duration, until the energy has reaccumulated and again has to be yielded to in order to obtain relief. As a rule, the patient realizes that the whole affair is foolish and senseless, but he cannot help it.

With regard to the mechanism which is the basis of this reaction, we cannot take a better starting point than a repetition of a portion of Janet's definition, which says, ". . . by the substitution of inferior and exaggerated operations under the form of doubts, agitations, anguish and by obsessing ideas which express the preceding troubles and which present themselves the same characters." Very familiar are these "exaggerated operations" and I need only mention the rituals of handwashing, the counting of a certain definite number of steps, the compulsions to remember names or figures, to perform various acts in a definite routine and stereotyped manner, etc. Let us then look upon the compulsion neurosis as a true defense neurosis, and its symptoms, at least the compulsive acts, which develop late in the course of the disorder, as being of the nature of ceremonials, which not only serve to disguise the true situation from the patient, thus acting as a defense, but to atone for an evil.

Atonement for evil suffered or committed may be undertaken in many ways. But it is the unconscious striving for atonement, blind seeking for means of purification which presents in these patients as camouflaged symptoms, complex problems needing unravelling and clarification. Presented in symbolic form, acts or desires for atonement are naturally puzzling. Even with the recognition of the desire for atonement, it becomes necessary to analyze and understand the true meaning and significance of the symbols.

How many of us have ever stopped to think that in the course of our daily lives, countless events, which we take more or less for granted, are in reality symbolizations? Certainly much of our present-day religion comes to us in the form of symbols. The dove represents the Holy Ghost. The baptism of infants, or baptism by immersion, symbolizes the washing away of sins. The bread and wine of the communion symbolize the body and blood of the Saviour.

Happenings and commonplace events of our daily lives, religious or otherwise, come to us in the guise of symbols. Without attempting to question their source or to analyze their true meaning, we just take them for granted. The mind of the patient struggling under the load of obsessions and compulsions, in its floundering and efforts at explanation and rationalization often has recourse to symbolization in its efforts to attain the sought-for atonement or purification.

No better elucidation of the mechanisms underlying the production of the compulsion neurosis can be presented than that given by Freud. His statements as set down by Hitschmann in his "Freud's Theories of the Neuroses" are rather complicated. The theory in brief is that in the compulsion neurosis the alteration is kept within psychological boundaries. In contradistinction to the mechanism of hysteria in which the alteration is brought about by a conversion process of the repressed material into bodily ailments, the alteration, or as Freud and others speak of it as "the distortion," in compulsion neurosis is brought about by the displacement of the emotion and the production of a purificatory ritual.

In the following case I will show to what lengths the patient can go in his attempts to work out for himself a satisfactory compensation to bring relief to their strivings. In this particular instance there were futile and tremendously exaggerated attempts at self-purification, and the history will show in what manner the attempts became rituals which assumed a definitely symbolic form.

In 1923 a young married woman of about 24 was seen at the request of a surgical colleague. The woman had first consulted the surgeon upon the advice of friends who told her that she had "thyroid trouble." At that time she complained of "being nervous and chronically tired." A careful examination revealed no physical evidence of any thyroid disturbance. This was further confirmed by a normal basal metabolic rate. Various therapeutic measures—rest, tonics, dietary regulation (there having been some slight trouble with constipation)—failed to relieve the condition, and her complaints persisting, I was asked to see her.

The patient was born in an isolated section of California, and had spent the first 16 or 17 years of her life cut off from the rest of the world by the geography of the country.

Despite the isolation she acquired a very satisfactory education, and supplemented this, when her family moved to a more settled district, by attending classes at a public school. Altogether she impressed one as being

a very capable and sensible young woman who had successfully overcome her early disadvantages. She was fond of good books, appreciated the better type of music, enjoyed social activities in moderation, but not to the extent of jazz and cheap movies.

At about the age of 20 she married a young rancher, one or two years her senior, who at the time of their marriage lived on land belonging to his family and was endeavoring to put the ranch on a paying basis. The first year or 18 months of their married life was quite happy. The husband worked hard and faithfully in his efforts to straighten out his agricultural difficulties. They kept no servant as it was their mutual desire to economize in every possible way.

Both the patient and her husband were greatly disappointed at her failure to become pregnant. No contraceptive measures were used, as they both, and particularly the patient, wanted a child.

Matters went along smoothly until after the second year of marriage. At this time a slight cloud was caused by the settling in their neighborhood of the patient's aunt and the husband's grandmother. The patient characterized these two women as being "old busybodies," and her opinion of them seemed quite true. Both seemed to take delight in running in and out of her house all day long. The aunt criticizing the husband to the patient and the grandmother doing the same thing to the husband. The husband would repeat these criticisms, but only in a joking way, to his wife, and later they assumed much importance for the patient. Despite this interference, their family life, when they were alone, was quite smooth, but the disappointment over the non-arrival of a child was considerable.

At about this time in her married life the patient first showed her manifestations of her so-called "nervousness," these increased until she sought medical advice.

Very little information was obtained from the patient during the first few interviews, other than the details of the story which have already been set down.

At the fourth interview the patient was urged to go more into detail concerning her intimate life, and after a little persuasion she produced a statement of which the following is a summary:

At only rare intervals during her married life had she experienced any sexual pleasure at all. She was genuinely in love with her husband and welcomed his advances, but not more than three times in her married life had she experienced any sensual feeling, and then only to a minor degree, never to the point of orgasm. She said that her husband was always unaware of her involuntary frigidity, and she had never enlightened him as she did not wish to spoil his pleasure. In spite of her lack of sexual acme, intercourse was indulged in at frequent intervals, for, as she said, "I always hoped the next time would be different."

With the relation of these details of her intimate life it was at once evident that some inhibitory force was preventing her from experiencing the desired climax, and for the time being the analysis of this phase of her difficulties was postponed.

As there was not enough at fault in the patient's somatic condition to account for her complaint of being "chronically tired," she was asked to give a recital of her daily routine, in the hope that some clue to the difficulty might be found there. At once some extremely important material was brought to light.

As a general rule the patient and her husband arose at about 6 a. m., and by 7 a. m. the husband was out at work. By 7.30 a. m. the breakfast dishes were out of the way, and by not later than 7.45 a. m. the patient was, to use her own words, "hard at work." Asked what was meant by "hard at work" she replied, "Why, cleaning house." The patient and her husband lived in a one-story bungalow of five rooms, living room, dining room, bed room, with adjoining bath, and kitchen. All of these rooms were meticulously and thoroughly cleaned every day, floors and windows washed, and the bungalow porch scrubbed. The only interruption was when her husband came home to a light luncheon. The house-cleaning was generally finished by about 5.30 p. m. in time to allow the patient to prepare supper. Marketing was principally done by telephone, thus leaving the whole day practically free for her arduous labor, and by night she was usually exhausted, but, again to quote the patient's words, she "felt better than she had in the morning, was less nervous, but was always tired to death." This daily routine had been persisted in for many months. Her husband had repeatedly and always unsuccessfully asked her to give up what seemed to him to be unnecessary and useless labor. Her reply was always, "But I have to do it." This careful house-cleaning came to be more or less of a family joke, and the husband frequently boasted of her remarkable cleanliness as a house-keeper.

On being asked as to the motives back of her assiduous care in house-cleaning, her answer was her usual one, "I have to do it." But after a moment she added, "I feel as if I had to clean the bungalow inside and out every day." This sentence later proved to be the clue underlying the real motivation of her excessive cleanliness, and at our next meeting the analysis was carried on from this point.

Unexpected resistance was met, and I then endeavored to obtain free associations from the words "bungalow," "inside" and "out" (side). Some unimportant associations were at first produced, but after a comparatively short time the patient suddenly said, as if a light were dawning upon her, "Why, I see what you mean and what I have been trying to tell you, the bungalow is me, myself; 'inside' and 'outside' are my body and soul. I am trying to clean myself 'inside and outside,' body and soul." At this point the patient became so emotional that the analysis had to be postponed to another meeting.

She was quite calm on her next visit, and on being urged to speak frankly regarding her wish for self-purification, she related the following account:

During the time the patient and her family were living in the isolated section of California, she was about 17 or 18 at the time, she became engaged to a young man, the son of a prosperous rancher, and their only neighbor in many miles. The father of the young man had given him some acreage

to "homestead" and on this "homestead" had built a rather comfortable but unpretentious house. There the young man lived attended by an old family servant. From all accounts the wooing must have been rather tempestuous, and propinquity and the absence of other young people probably played a large part in the making of the engagement.

About two months before the wedding was scheduled to take place she was asked by her fiancé to come to his house to inspect certain alterations he was having made in the house, and also to pass upon samples of carpets and curtains. At first she hesitated, saying that she did not think it proper for her to visit him in such an out of the way place unchaperoned. He overcame her objections by saying that his servant, an old Chinaman, would be there also. With this information she consented to the visit.

However, on her arrival she found the servant was away. The young man excused the servant's absence by saying that he had probably gone out for a short walk. Later events proved that the servant had purposely been sent away for the afternoon.

For about an hour they discussed the alterations and looked at the samples of the curtains, etc. Then becoming uneasy at the servant's prolonged absence she asked to be taken home. With that her fiancé requested extra-marital privileges. These were indignantly denied and she attempted to leave the house. The man seized her and attempted intercourse. In the scuffle her underclothing was torn, but there was no intromission. She struck him across the eyes with her hand, thus blinding him momentarily and so managed to escape from the house. She walked and ran the five or more miles to her own home and by the time she reached there she had managed to compose herself enough to make a pretty casual appearance. As it was after dark when she arrived she excused the non-appearance of the young man by saying that he had left her at the front gate, a distance of a hundred yards or so from the house. She immediately broke off the engagement and never saw the man again.

She had never spoken of this episode to her husband, nor had she told him that she had been engaged before. Her former fiancé was dead and she saw no reason for bringing up the old story. But in this experience lay the roots of her desire for purification, she had come to her husband unclean. The attempted assault had, in her opinion, besmirched her and through her own unconscious strivings she was seeking cleanliness. The bungalow, symbolizing herself, had to be cleaned inside and out. But always during marital relations, in spite of all she could do, the memory of this former assault would come into her mind. Anxious as she was to experience the sexual climax, the terror of the former episode, to quote the patient's words, "choked her and made her cold all over."

The necessity of getting square with herself and realizing, that unfortunate as the episode (the assault) had been, that in no way could any blame or stigma be attached to her, was explained to her, and she was urged to tell her husband the whole story. This she did.

A few weeks later the patient came to me to report progress. The husband was extremely cooperative, very helpful and understanding, and by his gentle handling was able to ease the situation to a marked degree.

At the time of the patient's first reporting to me after the ventilation of her difficulties, her frigidity, according to her report, was disappearing and she was quite optimistic over the eventual disappearance of this difficulty.

She was followed for the next eighteen months and from time to time reported her progress. It was slow, but at the end of six months after her ventilation, her frigidity had entirely disappeared and she was experiencing normal sensations during marital relations.

Almost immediately following her last interview she had abandoned her futile house-cleaning, and in a desire to help out the family income had taken a position as cashier in a store. Her further progress is unknown as she and her husband left Santa Barbara immediately after the earthquake of 1925.

In the history of this patient are presented the typical symptoms of a compulsion neurosis arising as a result of a sex trauma experienced earlier in life. The symptoms, in the main, representing the efforts on the part of the patient to atone for her imagined uncleanness, and her compensatory atonement being represented by symbolic attempts at self-purification.

Notes and Comment.

DR. WILLIAM A. WHITE'S QUARTER CENTENARY AS MEDICAL SUPERINTENDENT OF SAINT ELIZABETHS HOSPITAL, WASHINGTON, D. C.—On October 1, 1903, Dr. William A. White assumed the duties of medical superintendent of Saint Elizabeths Hospital, to which he had been elected following the death of Dr. A. B. Richardson in the previous June.

Dr. White had been an assistant physician at the Binghamton, N. Y., State Hospital for about eleven years and was first assistant when he resigned to go to Washington.

After receiving his medical degree in 1891 he was intern in two general hospitals, going to Binghamton in 1892.

There he served under a good master and teacher, the late Dr. Charles G. Wagner. In addition to his work at Binghamton, he did, while connected with the hospital, some special research work at the Psychiatric Institute of the N. Y. State Hospitals in New York City.

Dr. White's quarter of a century at Saint Elizabeths Hospital has been a busy one. It has been a period of extraordinary activity in psychiatry; a period in which tremendous strides have been made toward a clearer conception of mental disorders and a better understanding of methods of treatment.

To all of these changes which time has brought about since 1903, when Dr. White took charge of Saint Elizabeths Hospital, he has contributed by no means a small share. He has done this, however, in a quiet and non-ostentatious manner. There has been no beating of drums, no glare of lights and tinsel. He has gone about his work in a manner best calculated to accomplish results. He has gathered about him a group of earnest students on his staff, in whom it has not been difficult to awaken an enthusiasm for research and study.

As a result the institution has become in all essentials a general hospital, but a general hospital whose patients are primarily admit-

ted because of mental symptoms. These patients find, however, that all their symptoms, physical as well as mental, are carefully studied and that all the resources of modern medicine and surgery are brought to bear upon the treatment of their disorders, of whatever character.

In 1925 the Committee on Standards and Policies of The American Psychiatric Association made a report of its study of the standards and methods of a large number of American hospitals for mental disorders. From this report we have had occasion to quote regarding Saint Elizabeths Hospital (Vol. VI, No. 3, Jan., 1927, p. 589) and we feel that we can in no better way as concisely indicate what Dr. White has accomplished than by repeating the quotation.

The committee says:

The splendid example set by the Government Hospital at Washington [St. Elizabeths] with its adequate per capita expenditure, its proportion of physicians to patients of 1 to 133, its proportion of nurses of 1 to 6.5 patients, its well-organized services and treatment departments, its fine laboratories, and its library of 11,000 volumes should arouse the emulation of every state, and be a source of pride that we may all share in without envy.

In the article in which the JOURNAL used the above quotation it said:

At St. Elizabeths this medical spirit, this hospital atmosphere has been developed to a remarkable degree under Dr. White's initiative and direction. Here young men have opportunities for training and experience not only in psychiatry, but because of the fact that a psychiatric training gives any physician a better insight into his patient's condition, a training of incalculable value in any medical career. Dr. White has so developed the study of intercurrent or associated maladies among his mental patients that he has developed at St. Elizabeths a clinic of no mean importance in general medicine and surgery, all of which tends to the better care of all of his patients.

Dr. White's twenty-fifth anniversary at Saint Elizabeths has been celebrated in various ways.

On the afternoon of October 3, a celebration of the event under the auspices of the personnel of the hospital was held in Hitchcock Hall at the hospital.

It was presided over by Admiral E. R. Stitt, U. S. N., President of the Board of Visitors. At this celebration a manuscript volume commemorative of the event, and reciting the outstanding points in

Dr. White's career, together with the development of the hospital under his direction, was presented to him by the hospital personnel.

This volume was prepared by a committee of which Dr. John E. Lind of the hospital staff was chairman.

The JOURNAL regrets that pressure upon its pages incident to an unusually large accumulation of manuscripts awaiting publication forbids, what would otherwise be a pleasure, liberal quotation from the pages of this volume, a copy of which has been placed in our hands by Dr. Lind.

In further celebration of this anniversary a dinner was given Dr. White at the Wardman Park Hotel, Washington, on the evening of November 10.

Dr. Lewellys F. Barker, of Baltimore, presided at the dinner, which was attended by over three hundred of Dr. White's medical and lay friends.

Dr. Barker, when the coffee and cigars were brought on, in some very felicitous remarks recited the salient points in Dr. White's career, congratulated him upon the event which his friends were celebrating and which they were making the occasion of showing their admiration for his work and their affection for him.

Dr. H. W. Mitchell, of Warren, Penna., who was to have been the first of three speakers at the dinner, was unfortunately detained by illness. The other speakers were Frank J. Hogan, Esq., of the Bar of the District of Columbia, and Dr. Smith Ely Jelliffe, of New York, a co-worker with Dr. White in several publications.

At the conclusion of the remarks of these gentlemen, Dr. Barker, on behalf of Dr. White's friends, presented him a very beautiful watch and chain.

Dr. White has been a most prolific writer. In conjunction with Dr. Jelliffe, he has published *The Modern Treatment of Mental and Nervous Diseases*, a large two-volume work with several contributors (1913); *Diseases of the Nervous System*, a text book of neurology and psychiatry (1919).

He is author of the following works: *The Outlines of Psychiatry*, the first edition of which was published in 1907 and which is now in its eleventh edition; *Foundations of Psychiatry: Introduction to a Study of the Mind*; *Mental Mechanisms*; *Mechanisms of Character Formation*; *Principles of Mental Hygiene*; *Mental Hygiene of Childhood*; *Thoughts of a Psychiatrist on War and After*;

Essays on Psychopathology; Lectures in Psychiatry; Psychiatry and the Criminal Law; The Meaning of Disease.

In addition to the above there have been articles in medical periodicals, editorial work on the *Psychoanalytic Review* and several important translations, and numerous addresses not published.

Notwithstanding all the publicity which has come to Dr. White by reason of his work at Saint Elizabeths and his publications he has kept his feet on the ground and his head below the clouds. He has permitted neither adulation nor assault to move him. The goal which he was seeking, a better and more efficient hospital, a larger and more scientific service to the public and a greater service to his profession, has been kept steadily in view.

Therefore, we say, long life and added power to him. Out of the experiences of the past quarter of a century he will unfailingly draw lessons for the coming years. May they be many and fruitful.

Association and Hospital Notes and News.

ASSOCIATION FOR RESEARCH IN NERVOUS AND MENTAL DISEASE.—The Ninth Annual Meeting of the Association for Research in Nervous and Mental Disease will be held at the Hotel Commodore, 42d Street and Lexington Avenue, New York City, on Thursday and Friday, December 27 and 28, 1928. The subject which will be presented at this meeting is "The Vegetative Nervous System." This program has been arranged by Dr. Walter Timme the President of the Association, and covers a wide field of investigative activity.

The following is a tentative program of the papers to be presented during the meeting:

(A) *Historical Retrospect of Vegetative Nervous System.*

(B) *Anatomy (Gross and Histological):*

1. Peripheral Distribution of Sympathetic and Visceral Afferent Fibres via the Communicating Rami and Spinal Nerves. Dr. Albert Kuntz, St. Louis.
2. Central Representation of the Sympathetic. Dr. W. B. Cannon and co-workers, Boston.
3. Autonomic Nuclei of the Diencephalon, Brain Stem and Spinal Cord. Dr. E. F. Malone, Cincinnati.
4. Sympathetic Cells in Mid-Brain and Higher. Correlation as to Function. Dr. E. F. Malone, Cincinnati.
5. The Divisions of the Vegetative Nervous System (probably published and not read).
6. Specific Ganglia and Plexuses of Visceral Organs (probably published and not read).
7. Sympathetic Innervation of the Muscle Spindle. Dr. Marion H. Loeb, Baltimore.
8. Three Types of Fibres going to Skeletal Muscles and Their Blood Vessels. Dr. S. W. Ranson, St. Louis; Dr. Hinsey, St. Louis.
9. Histology of Tuber Cinereum. Dr. E. F. Malone, Cincinnati.
10. Development of the Sympathetic, Dr. A. Kuntz, St. Louis.

(C) *Physiology:*

1. Sympathetic Nervous System in Relation to the Internal Secretions. Dr. W. B. Cannon and co-workers, Boston.
2. Sympathetic in Relation to Muscular Functions. Dr. W. B. Cannon and co-workers, Boston.
3. The Influence of the Vegetative Nervous System on the Capillary Circulation. Dr. J. Hamilton Crawford, Pontiac.
4. The Diencephalon in Relation to Visceral Functions. Dr. G. Carl Huber, Ann Arbor, Mich., Dr. Elizabeth C. Crosby.

(D) *Pathology, Experimental:*

1. Histopathology of Cerebral Vessels; Presence of Sympathetic Fibres. Dr. G. B. Hassin, Chicago.
2. Histopathology of the Sympathetic; Experi-

mental in Character. Dr. S. W. Ranson, St. Louis. 3. Dispensability of the Sympathetic Nervous System. Dr. W. B. Cannon and co-workers, Boston. 4. The Role of the Sympathetic in Painful Affections of the Face. Dr. Max M. Peet, Ann Arbor. 5. Regeneration of Sympathetic Nerve Fibres. Dr. Ferdinand C. Lee, Baltimore. 6. Sympathetic Dysfunction in Lesions of the Nervous System. Dr. Richard M. Brickner, New York. 7. Mechanism of Pain in Angina Pectoris and Lesions of the Peripheral Vascular System. Dr. Wilder Penfield, New York. 8. Relation of Disturbances in the Vegetative Nervous System to Thoracic or Visceral Disease. Dr. F. M. Pottenger, Monrovia. 9. Vagus Nerve Activity; Animal Experimentation. Dr. Walter Hughson, Baltimore. 10. Parkinson's Disease. Dr. Leslie B. Hohman, Baltimore. 11. Relation of the Vegetative Nervous System to Hyperthyroidism. Dr. George W. Crile, Cleveland.

(E) *Pharmacology:*

1. Parathyroid Influence on the Vegetative Nervous System. Dr. J. B. Collip, Montreal. 2. A Study of the Sweating Reaction Induced by Administration of Pilocarpine in Diseases of the Spinal Cord with particular reference to its Use as an Aid in Localizing the Segmental Level of Spinal Cord Tumors. Dr. C. B. Craig, New York.

(F) *Psychology:*

1. Relation of the Vegetative Nervous System to the Emotions. Dr. W. B. Cannon and co-workers, Boston. 2. A Study of the Reaction of Adrenalin Pilocarpin and Atropin on Psychoneurotic and Pre-Psychotic Patients. Dr. David C. Wilson, Clifton Springs.

(G) *Syndromes of the Vegetative Nervous System:*

1. Reactions in the Autonomic Nerve Mechanism caused by Sensitiveness to Heat and Cold. Dr. M. W. Duke, Kansas City. 2. Autonomic Imbalance with its Symptomatology. Dr. Leo Kessel, New York City. 5. Vegetative Neuroses, especially Feer's Disease. Acrodynia. Dr. A. S. Warthin, Ann Arbor. 4. Some of the Common Sympathetic Reflexes. Dr. C. W. Patten, Philadelphia.

(H) *Surgical Therapy:*

1. Histological Work Done on Ganglia. Dr. H. H. Kerr, Washington. 2. Sympathectomy in Angina Pectoris. Dr. H. H. Kerr, Washington. 3. Physiological Effects Produced by Resection of the Thoracic Sympathetic Trunk and Removal of the Two Upper Ganglia. Dr. George E. Brown, Rochester, Minn.; Dr. Alfred W. Adson, Rochester, Minn. 4. Treatment of Anginal Pains with Paravertebral Injections. Dr. James C. White, Boston. 5. Periarterial Sympathectomy in Raynaud's Disease. Dr. George C. Muller, Philadelphia.

The sessions are held on the morning and afternoon of each day, the morning sessions beginning at 9.30 and the afternoon sessions at 2.30. A combined invitation and subscription luncheon is held on each day at the Hotel Commodore. Plans are now being

laid for some form of suitable entertainment for the evening of Thursday. The sessions are open to all who wish to attend. Members and others who expect to be present are urged to make their own reservations at the Hotel Commodore at as early a date as possible.

CONFERENCE ON MENTAL HYGIENE IN PUBLIC HEALTH AND SOCIAL WORK.—On January 29, 1929, in the Main Dining Hall on the 14th floor of the Chamber of Commerce Building, Boston, there will be held a joint conference on Mental Hygiene in Public Health and Social Work, under the auspices of the Massachusetts Society for Mental Hygiene, the Boston Council of Social Agencies, and the Boston Health League. There will be an afternoon session at 3.30 and an evening session with a dinner at 6.30.

The following is the program for this conference:

AFTERNOON SESSION: 3.30 P. M.

C. Macfie Campbell, M. D., Presiding, President, Massachusetts Society for Mental Hygiene, and Director, Boston Psychopathic Hospital. The Rôle That Mental Hygiene Plays in School Hygiene, by James S. Plant, M. D., Director, Essex County Juvenile Clinic, Newark, New Jersey. The Psychiatric School Worker and Her Relation to Social Case Work, by Mrs. Eva Whiting White, Director, School of Social Work, Simmons College. A Critique of Mental Hygiene, to be announced later. The Psychiatric Social Worker's Contribution to Community Nursing, by Miss Marie L. Donohoe, Mental Health Supervisor, Community Health Association. A Nutrition Worker Looks at Mental Hygiene, by Miss Frances Stern, Chief of the Food Clinic, Boston Dispensary. Summary of the Afternoon Program, by Mr. Robert W. Kelso, Executive Secretary, Boston Council of Social Agencies.

DINNER: 6.30 P. M.

Followed by the EVENING SESSION

George S. Bigelow, M. D., Presiding, Commissioner, Massachusetts Department of Public Health. The Significance of Mental Hygiene to Public Health, by C. E. A. Winslow, M. D., Professor, Public Health, Yale School of Medicine. What Mental Hygiene Means to Social Work, by Mr. Barry K. Smith, General Director, Commonwealth Fund. What Mental Hygiene and Psychiatry Offer the Fields of Public Health and Social Work, by George M. Kline, M. D., Commissioner, Massachusetts Department of Mental Diseases.

Abstracts and Extracts.

Some Effects of a Course in American Race Problems on the Race Prejudice of 450 Undergraduates at the University of Pennsylvania. DONALD YOUNG (The Jour. of Abnormal & Social Psychology, Vol. 22, Page 235, Oct.-Dec., 1927) attempts to discover whether the course in American race problems alters materially the race prejudice of the students who take the course. He feels that the students taking this course obtain a fair understanding of the subject. Remarks by the students, when off guard, seem to show that they retain their race prejudice in spite of this. Among the tests devised to check up on this, the students were required to list twenty races and nationalities and rank them according to their inborn ability, using as many classes as they saw fit and putting as many groups of peoples into the same class as they thought proper. It was understood that these questionnaires would have nothing to do with their grades. Before the start of the fall term most lists contained from 6 to 15 classes, some as high as 20, a few from 3 to 6 classes only. These results were practically unchanged at the end of the term. Other tests devised along similar lines gave similar results. The author admits the method of approach to be quite crude but, in spite of its difficulties, he feels it yields more accurate results than formal examination. He further states that other studies showed a definite correlation between what the individual thought of as his race and his estimate of racial potentialities. The nationality and race of servants in the homes also appeared to be a factor, sometimes raising and sometimes lowering the estimate of the group to which the servant belonged. Another approach which gave definite results was the question as follows: "On the other side of this sheet write brief descriptions of the first member of the following groups that you can recall—(a) Negro, (b) Chinese, (c) Japanese, (d) Italian, Greek, Mexican, Pole or Jew, (3) Scandinavian, German or Englishman" with further instructions to be brief. He states that it was remarkable how often the first Chinese was a laundryman, the first negro a gardener, washwoman, laborer or handyman, the first Greek a boot black or fruit store owner, the first Italian, Mexican or Pole a laborer. Few such recollections of Englishmen or Germans was given. The author concludes that such results justify further study of our methods of teaching race relations to bring out more clearly the fact that racial differences are more often cultural in origin than due to any difference in inborn mental ability.

EBAUGH.

Notes on the Mental Development of Children Exhibiting the Somatic Signs of Puberty Præcox. LOIS DOE KULMANN and CALVIN P. STONE (Jour. of Abnormal & Social Psychology, Vol. 22, Page 291, Oct.-Dec.,

1927) present a review of original case records of puberty præcox with the object of assembling all data on mental development embodied therein. They found 190 cases, only 62 of which gave any reference whatever to the mental development, school achievement or intellectual performances of the subject. From the data thus collected they draw the following deductions: 1. In puberty præcox the rate of mental development tends to be normal or subnormal. It is seldom, if ever, really accelerated. Specific trends of mental development are probably not closely correlated with specific types of pathological development or functioning of the endocrine glands underlying the disorder. 2. Such physical traits as height, weight, strength, ossification of bones, etc., may greatly surpass the norms for children of similar ages and frequently surpass the extreme ranges for American school children. 3. Precocious development of the external genitals and the secondary sexual characteristics is usually found. 4. Puberty præcox is considered an acquired disorder arising on a basis of pathological development or pathological functioning of the glands of internal secretion. There is no evidence pointing to a distinctly hereditary basis.

EBAUGH.

The Normal Inferiority Complex. E. F. HEIDBREDER (JOUR. of Abnormal & Social Psychology, Vol. 22, Page 243, Oct.-Dec., 1927) undertakes an inquiry into the presence or absence of the inferiority complex in normal individuals by means of a rating scale consisting of 137 traits which, according to the literature, would be symptomatic of the condition in question. Two hundred sixty-eight subjects, 120 men and 148 women, were included in the group. Each subject was rated independently by himself and by each of two people who knew him. The ratings follow a conventional five-point scale. (It is extremely doubtful whether any complex could be measured by such a method. While the symptomatic traits are indicative of an individual dominated by such a complex, their absence in the appearance of the opposite trait by no means excludes the complex in question.) The author indicates the reliability of the test by quoting the correlation coefficient of $+ .73 \pm .03$ between original tests and retests of 147 individuals after an interval of six weeks. She gives the following results of the study: 1. The scores gave approximately a normal distribution for both men and women according to both self and associates' ratings. She considers that this shows resistance to the tendency for ratings to be concentrated about the socially desirable traits. She also thinks the distribution suggests that the inferiority complex is present in different individuals in different degrees. (One would think rather it was manifested in different degrees.) 2. The inferiority complex as revealed by the ratings corresponded in general outline to the inferiority complex as described in the psychological literature. (Properly, we deal here with symptoms only.) 3. The data also gives evidence on the particular constituents of the inferiority complex with the self-regarding attitudes primarily at fault. (Again, we deal with symptoms.)

The rest of the results are too detailed to be abstracted here.

EBAUGH.

The Mechanism of Psychic Regression. E. W. LAZELL (U. S. Veterans' Bureau Medical Bulletin Vol. 3, Page 1089, Nov., 1927) states that "regression is the cornerstone of the psychoses" and that "the patient returns to the emotional life of an earlier stage of his development." He thinks that the dissolution of the adult personality has its mental phases, its concomitant biological reactions, its physical changes and its endocrine differences. He believes the individual to be made up of multiple personalities and that only when they are completely dissociated and unaware of each other are they pathological. He considers that love has the function of expanding the sense of space and contracting the sense of time. Fear, on the other hand, contracts the sense of space and expands the sense of time and that fear arises in three ways—1. As a component of love due to its ambivalency. 2. As the result of repression of any instinctive impulses. 3. As a conditioned reflex by association. He thinks time and space are "forms of consciousness, the opposite poles of the same movement in consciousness. This explains the fact that any emotion which constricts the sense of space expands the sense of time and vice versa." He divides regression into nine stages—1. Stage of confusion. 2. Stage of dissolution. 3. Stage of retrograde displacement. 4. Stage of reactivation of infantile motives. 5. Stage of dissociation. 6. Stage of complete dissociation and regression (in severe cases). 7. Stage of rationalization of inferiority. 8. Stage of projection. 9. Stage of overcompensation. He quotes two cases in detail to illustrate the mechanism and collects thirty more, the regressive symptoms of which he presents briefly. He states that all of these patients were conscious of their feeling during the period of regression but that in others the mechanism must be dug out or found by analysis.

EBAUGH.

Psychic Factors in Juvenile Delinquency. FREDERICK H. ALLEN (Mental Hygiene, Vol. 11, Page 764, Oct., 1927) states that the keynote of the modern trend in social and medical sciences dealing with behavior has been the endeavor to know more about the individual and to obtain a better understanding and evaluation of the variety of life experiences and situations that contribute to the development of the personality and shape the manner in which it behaves. Prior to this social work was largely an alleviative process aimed at immediate situations. He believes that the psychiatrist would know very little about a human being if he studied only an isolated sample of his activity detached from its setting. "We see an individual who is very domineering, another who is very suspicious, another who breaks into a store, another who has a temper tantrum, and another who is afraid of cats. These samples of activity are not isolated phenomena. They must be related to very definite factors in the life of the individual. Behavior being purposive, each of these activities is serving some definite purpose for the individual in question." He applies this point of view to all forms of behavior and approaches the subject of the juvenile delinquent from this position. He thinks that the main difficulty lies in the emotional

barriers that hinder the development of an objective attitude in regard to certain types of behavior and that we think of these problems too much in terms of sickness and health. The establishment of more elastic types of procedure in some juvenile courts and the development of child guidance clinics are helping to open the way to the use of more scientific methods in handling and treating behavior abnormalities especially in the case of the juvenile delinquent. He points out the former tendency to explain behavior by rather fixed generalizations. He states that in each behavior problem there is always an individual attempting to work out a plan of living. His discussion deals particularly with the individual's struggle to attain self-respect, self-confidence, and an adequate sense of his own individuality. He believes that the drive to attain this goal motivates a great deal of both normal and abnormal behavior. Failure to attain this goal usually leads to the development of unhealthy compensatory activity and he holds this process to be related to delinquency in that delinquency is one of the common forms of compensatory effort. He states that of 60 stealing cases nearly half of them were related definitely to feelings of inadequacy. Common determining factors were physical characteristics such as obesity, speech defects, undersize, mental defects of varying degrees, certain habits such as enuresis and masturbation, racial prejudices, presence of more attractive and gifted brothers and sisters, immorality and desertion of parents, economic factors, failure to achieve a healthy emancipation from parents, and repressive discipline. He analyses three illustrative cases. He states that the real value of the individual approach lies in treatment and gives the following therapeutic outlines: (1) The elimination of one or more of the sources that are feeding the sense of inadequacy. (2) Changing the attitude of the individual and others in his environment toward the source of the difficulty. (3) Re-directing the activity into more socially constructive channels, strengthening the constructive assets of the individual, broadening interests, and creating opportunities for new ones. (4) Avoidance of creating new sources of difficulty by mistaken methods of handling those already developed. He states that dependence on corrective and punitive measures can accomplish very little because the real sources of the difficulty remain. He believes that a large portion of adult crime grows out of our failure to handle successfully and constructively the juvenile offender and concludes that the individual type of approach is necessary not only in our juvenile courts, but in the class-room, the home, and all other community organizations that deal with the child.

EBAUGH.

The Unmarried Mother; A Socio-Psychiatric Viewpoint. HENRY C. SCHUMACHER (Mental Hygiene, Vol. 11, Page 775, Oct., 1927) culls from the mass of conflicting statements in the recent literature concerning illegitimacy 5 clearly defined factors. (1) Unmarried mothers are mostly young; over 75 per cent are under 21 years of age. (2) Most of them come from economically inferior strata of the population. (3) To a large extent they

are of inferior mentality. (4) Over half of them have previously been delinquent, a third of them previously immoral. (5) Well over half of them come from homes in which there are immorality and alcoholism, poverty and dependency, absence of parental training and guidance, and in some instances encouragement of wrong doing. His study, however, is aimed at discovering the motive behind the immorality. He believes that external factors play a big part but that, excluding rape, her response to any given sex situation is, in its last analysis, her own. "Whether she sees reason for modifying her behavior, or is even actually aware of her ability or inability, if left to her own resources, to modify her conduct, is quite another matter." He admits pathological conditions in which the sex urge is excessive but holds that the girl need not, because of her constitutional makeup, give way to her sex desires and that other factors are operative. He cites as one of these the discrepancy between the precocious sex development and the development of normal inhibitions. "It may occur, and in fact it does, that though a girl has no more than a normal sex drive, yet she may lack ordinary normal inhibitions." He finds in this the chief point of the high correlation between mental defect and illegitimacy. He holds that idiots and low grade imbeciles are not much more interested in sex matters than children of corresponding mental age. The chief cause of their transgressions is seduction by degenerate males. As a solution to the problem he offers early institutional care of low grade defectives if home supervision is not highly satisfactory. For the higher grades of mental defectives he believes the chief factors to be weak inhibitions, attractive physical appearance, the fact that the normal channels of ego-satisfaction are in a great part closed to them and the normal craving for attention and affection. Thus they are easily seduced and once started many of them drift into promiscuity. In addition to the defectives he states that there are individuals who are quite normal physiologically and intellectually, but who engage in illicit sex relationships as an expression of a definite behavior tendency. The principal causes here, lie in attempts to overcome or to compensate for thwartings of desires or of activities in other directions; the feeling of being unfairly treated by parents and siblings; the deliberate and conscious choice of the individual to gratify her passions; and the definite psychoses and the more serious psychoneuroses.

He would approach the solution of the problem by a thorough investigation of the environment and the personality of the individual. He considers the problem fundamentally as a socio-psychiatric one and while he admits the need of legal assistance he does not think that the law can be all sufficient. He would have all such cases heard in chancery so that the state would become the protector of the interests of the unmarried mother and her child; the question of guilt would become secondary to the matter of reasons for behavior; social evidence could be utilized; and no publicity need be given to the case. He advises the adoption of the necessary legislation. In the treatment of such cases he would begin by creating in the girl insight into the reasons back of her misconduct. The possibility

of controlling her sex urges should be pointed out to her. He would also utilize the mother instinct as a socially accepted outlet for her sex hunger by leaving the child with the mother at least during the period of social readjustment. (He scarcely mentions the correction of environmental factors.) He advocates further studies along these lines.

EBAUGH.

The Intelligence and Social Background of the Unmarried Mother. CHARLOTTE LOWE (Mental Hygiene, Vol. 11, Page 783, Oct., 1927) presents the results of a psychological study of a group of unmarried mothers investigated by the Research Bureau of The State Board of Control of Minnesota last year. In order to be reasonably sure that the mother had regained her health, they waited until the baby was four weeks old before giving the examination. Hence, the cases came exclusively from seven maternity hospitals in the Twin Cities which keep the girls for three months nursing period. Of 415 cases reported, 71 could not be examined for various reasons. They felt that the 344 remaining cases were an unselected group but still sufficient in number for the problem. The procedure consisted in the giving of a group test to four or five of the girls at a time. If the result gave an I. Q. above 80 it was used, if below 80 an individual test was given and the result of this was substituted for the group test result. About a third of the group was given the individual test. Sixty-six and fifty-seven hundredths per cent (66.57%) were found to be below average, 21.5 per cent above as compared with the normal range of 38.09 per cent below and 37.89 per cent above, 23.84 per cent had I. Q.'s under 75 and would be classed as feeble minded, contrasted with 5.18 per cent among the school children. Borderline cases were 24.42 per cent as compared with 11.65 per cent in the school children. The author states that these figures correspond well with the results of examinations given to other delinquent groups and quotes previous studies to show this. She thinks that perhaps many of the highest as well as of the dullest of the unmarried mothers never find their way to the maternity hospitals but that the group study represents the ones who form the problem of the social worker. The median chronological age of the entire group was 20 years and the age having the greatest number of cases was 18; 55.2 per cent being less than 21 years. Relating this to the intelligence she finds that the younger they are the more nearly normal is the I. Q. and concludes that many of the brighter girls are delinquent because of the emotional instability of youth.

Sociological data were also collected as far as possible. (1) Amusements. The number recorded in the histories is too few. The outstanding features were public dances and auto riding which were named as diversions far in excess of any others. (2) Occupations were classified as: (a) Those requiring high school training plus special training, (b) those requiring high school education, (c) those where experience is necessary, (d) mechanical work without supervision, (e) mechanical work with supervision. Eight per cent (8%) of the cases were in class a; 2.8 per cent in class b; 2.8 per

cent in class c; 16 per cent in class d; 70.5 per cent in class e. (3) School record. Fifty-nine and three hundredths per cent (59.3%) never reached high school, whereas 48 per cent of all school children of Minnesota never reach high school. (4) The analysis of the home life showed 23 per cent of the girls coming from a broken home. (5) Occupations of fathers were as follows: 58.5 per cent were farmers; 1.9 per cent were professional men; 10.2 per cent were highly skilled workers; 12.1 per cent were semi-skilled workers; 17.4 per cent unskilled laborers of all kinds. (6) Size of the family analyzed showed 55 per cent of the girls coming from families of 6 or more children whereas the average family size in Minnesota is given as 3.5. (7) Other conditions of home life were reviewed but nothing significant was found. (8) Investigation of whether pregnancy occurred before or after leaving home showed 54.8 per cent pregnant before leaving home; 13 per cent pregnant after leaving home in country and going to small town; 3.6 per cent pregnant during first year after leaving home and going to the city, 6.1 per cent pregnant during second year and 22.4 per cent after second year. (9) In discussing the burden to the state, the author states that in 1924 there were 1065 illegitimate births reported in Minnesota and that about 50 per cent of all illegitimate children reported are supported by the state for at least four years. She computes that this would cost the state a half million dollars a year. She thinks that it would be better for the state to provide more club houses and neighborhood houses, employ more social workers and visiting teachers and spend more money for the detection and care of the feeble minded.

She concludes with the following recommendations:

1. That every unmarried mother be given a mental test.
2. That the ones found to be feeble minded be prevented if possible from having any more children.
3. That more ways and means be provided for reaching young girls before they become delinquent.
4. That the schools, social workers and the churches of small towns and country districts watch out for their girls leaving schools to see what they do and where they go.
5. That the same organizations also pay attention to the girls who stay at home as they are as apt to become delinquent as those who leave.

EBAUGH.

The Eighth Maudsley's Lecture: Dealing With Some of the Work Done to Elucidate the Pathology of Disease Falling to be Considered Under the Rubric "Insanity." EDWIN GOODALL (Jour. Mental Science, 1927, Vol. LXXIII, p. 361) reviews a fair portion of the recent work in the morbid histology, toxemia and bacteriology, metabolism, and biochemical research in mental diseases. Under the first caption he states that about 25 years ago interest in the morbid anatomy of the brain began to slacken because attention began to be directed to pathological causation, and interest in the endocrines, the autonomic nervous system and biochemistry sprang up.

However, some work has been done in morbid histology of the brain and improvements in technique have resulted. He treats with a number of these improvements; photo-micrography in ultra-violet light; the study of the origin and significance of the plasma cells in dementia paralytica, encephalitis lethargica, etc.; studies of the neuroglia and demonstration of the microglia. He feels that these studies should be supplemented by research in morbid histology. He states that, excepting dementia paralytica, senile and arteriosclerotic dementias, the brain changes found in cases of mental diseases are uncharacteristic, especially in the dementia præcox group. The lesions which have been advanced as characteristic cannot be accepted as such and he thinks that much more work is needed in this direction. The bulk of authentic material so far studied points to widespread changes in the encephalon, and lesions have been described in all the component parts of the brain. Further studies are needed to corroborate Mott's observation on the regressive atrophy of the tests and the decay of the nuclei of the cortical nerve cells. Tests by the Abderhalden method and other new methods to determine the presence of specific reactive substances in the blood serum have in general failed. He believes that the evidence of remissions in cases of dementia præcox should stimulate towards new research along the lines of therapy and new studies along the line of pathogenesis. Under the heading of toxemia he takes up the work done on the bacteriology of feces in acute mental disorders, as well as studies by means of chemical indices of intestinal putrefaction, but states that the results have been inconclusive. He refers to Ford Robertson's and Cotton's work on foci of infection in the gastrointestinal tract, and Mazzanti's report of cases of confusional insanity which showed macroscopic lesions of the intestine post-mortem. He thinks that the small intestine is too seldom examined at mental hospital autopsies. The X-ray findings of stasis, ptosis and spasticity require further studies. He contends that the leucocytosis with poly-nucelosis found in acute and recent cases points to a mild toxemia. This is substantiated by the mild acidosis found as well as the nitrogen retention. He further contends that various toxemias can produce any or all of the symptoms found in the psychoses and quotes a few cases to prove his point. The question of toxicity of the body fluids of persons suffering from mental diseases has not been thoroughly inquired into, and in the work that has been done no animals higher in the scale than rodents and fowls have been used. The results have been inconclusive. Under the heading of metabolism he states that the only important contribution has been that of Folin and Shaffer on the urine which indicated that general paralysis may be associated at one stage or another with some disturbance of metabolism. This work has been greatly hampered by the lack of accurate analytical methods. A few studies of basal metabolism have been made which, in general, show a tendency to lowering of metabolism in dementia præcox, and a like tendency has been noted in instances of psychopathic personality and in the depressed phase of manic-depressive insanity. On the basis of these findings the author recommends diathermy as a therapeutic measure. He recommends further studies in metabolism

and extending these studies in suitable cases to determine the specific dynamic effect of food stuff. He also suggests inquiry into the metabolism of water, sodium chloride and nitrogen. Under bio-chemical work he states that practically nothing was done along this line prior to 1904, the date of Folin and Shaffer's article referred to above. The bio-chemical studies have been forced to deal with comparative elementary research in order to devise accurate methods of approach, and the advances in physical chemistry have extended this obligation. Studies of the blood serum in epilepsy failed to confirm the idea that either a hypoglycæmia or an alkalosis precedes the convulsion. Indeed, some studies have shown that there was no difference in the blood sugar before, after or during the fit. In studies of the cerebrospinal fluid the author found a sugar content higher than normal in the majority of instances. Also the dextrose concentration factor of the cerebrospinal fluid of epileptics is above the average, whereas in general paralysis it is generally below. He explains this on the basis of permeability of the choroid plexus and recommends the bromide method of Walter and Hauptmann as a means of studying this. The details of the test are given. He feels that work so far done along this line in the psychoses needs confirmation. In general, cases of schizophrenia show diminished permeability where the functional cases tend to show a higher permeability. However, the differences are not constant or great enough to serve as diagnostic criteria. He states that the blood sugar studies in mental disorder show a tendency to abnormal curves, although the average glucose curve falls well within normal limits. On the other hand the fasting blood sugar is almost always normal in these cases. He urges these points as evidence of mild toxemia. Calcium and phosphorus studies show that the content of these elements is usually within normal limits in mental disease, with relative increase in manic and relative decrease in depressed and agitated states. In epilepsy these elements are normal. Studies of calcium content in relation to the administration of parathyroid showed no characteristic changes. Studies of the nitrogen partition in the blood, the spinal fluid and urine, which have been made in the author's laboratory, are summarized. The cerebrospinal fluid in general showed abnormal figures of total nitrogen. In dementia paralytica the figures are high and in the other cases they are generally low. In the former the protein nitrogen and the non-protein nitrogen is low. The non-protein nitrogen is not abnormal in the other disorders. Urea nitrogen and amino nitrogen are generally not abnormal. In the blood plasma irrespective of type of case, non-protein nitrogen and urea nitrogen tend to be high and the unknown nitrogen is high in some cases, while the amino-nitrogen tends to be low. In general, he concludes that the quantity of amino-nitrogen in the blood remains within normal limits with remarkable constancy. He thinks that low absolute figures for amino-nitrogen in the cerebrospinal fluid argues against the view that this fluid has nutrient properties and that the high protein content would indicate that it is a vehicle for removal of breakdown products. The examination of nitrogen partition in these cases brings out the fact that when protein is increased in the cerebrospinal fluid

the case is invariably one of gross organic lesion of the brain substance. In the urine the total nitrogen and urea nitrogen were low in all of his cases. He advises the exhaustive study of mental cases along all of the above lines and deplors the lack of sufficient medical personnel in the mental hospitals to carry on such work. (Excellent bibliography appended.)

EBAUGH.

Encephalographische Studien an Cronisch Schizophrenen. JACOBI and WINKLER (Archiv. für Psychiatrie und Nerven Krankheiten, 1927, 81, 299) analyzed 19 cases of advanced schizophrenic patients which were studied by encephalography after the injection of air. The air injections were all made on sitting patients by means of sub-occipital puncture, 60 to 145 c. c. of fluid being replaced by its equal volume of air. They report they saw no appearances of reactions in their patients excepting occasional slight headache on the following day, most frequently localized in the region of the forehead but there were no symptoms simulating meningismus. The temperature rose quite regularly on the day following, 1 to 1½ degrees C. and returned to normal on the next two days. By this means they were able to bring about large collections of air in the ventricles and subarachnoid space. In 18 of the 19 cases, there was distinct hydrocephalus internus or, at least, enlargement of the ventricle system in certain directions. For the most part the enlargement was of mild degree, but in some cases of very slight degree and yet beyond the physiological limits. In three cases, they found, in addition, a marked hydrocephalus externus with decrease in size of a great part of the convolutions of the brain. Six cases showed a large increase of the subarachnoid space and, in some of these, diminution of certain convolutions was evident. In 6 other cases, they found only a slight enlargement of the subarachnoid space, which they considered as not conclusively to be decided whether they might come within physiological limits. The cases, for the most part, are from young patients or from those in whom they considered senile degeneration so unlikely in order to exclude senile atrophy. They raise a number of interesting questions in connection with the research without attempting to settle them and submit their findings as an example of the possibilities of the method.

EBAUGH.

The Blood Pressure in Psychoneuroses. S. BARTON HALL (The Lancet, 1927, Vol. CCXIII, p. 540) summarizes the consensus of opinion regarding the blood pressure in the psychoses and psycho-neuroses as follows: In the psychoses it is variable, being higher than normal in cases of melancholia and depressed types of manic-depressive insanity, but subnormal in states of mania and agitated melancholia. In the psychoneuroses, neurasthenias and psychasthenias it is low and in the anxiety neuroses it is high. The author studies 71 cases of neurasthenia and psychasthenia and the anxiety neuroses

in which the blood pressure was determined very carefully. He reaches the following conclusions:

- (a) The findings in neurasthenia and psychasthenia are abnormally low.
- (b) In cases of anxiety neuroses and some psychasthenias the blood pressure may be abnormally and persistently high.
- (c) The blood pressure when abnormally high falls to within normal limits as the mental condition yields to treatment.
- (d) The initial blood pressure readings in neurotic cases may appear to be considerably higher than is actually the case.
- (e) The patient's mental state plays an important part in the etiology and treatment of hypertonus.

EBAUGH.

The Induction of Abortion in the Treatment and Prophylaxis of Mental Disorder. J. R. LORD (Jour. of Mental Science, 1927, Vol. LXXIII, page 390) states that the subject of the induction of abortion presents three aspects: the ethical, sociological and medical. These are so mutually involved that one cannot be discussed without a consideration of the others. He believes that "killing the child in the uterus is but infanticide predated" and asks the question, "What are the rights of the mother, the father and the state in regard to the living but unborn child?" That the child is a part of the body of the mother until born and separated from her, is an attitude which he calls the modern Teutonic view and states that Soviet Russia is the only civilized country that has legalized abortions. The only grounds the father can have for killing the unborn child are economic. He dismisses the claims of both parents on the grounds that the life of the child as a life entity commences with conception. As to the rights of the state, he takes the view that the only right to live in a civilized community is by permission of the state. He discusses the history of abortion at some length and gives as the first stage in civilized communities that the induction of abortion was justifiable when the life of the mother was likely to be endangered by motherhood. The next stage was justification on the likelihood of resulting permanent physical injury or ill health. The third stage was that such a resultant injury or ill health need not necessarily be permanent. He raises the question as to whether the state has recognized the fourth stage and conceded that the resultant ill health may be of the mind only. As to the eugenic grounds, the author is of the opinion that we do not know enough of the laws of heredity to justify such interference on the grounds of racial interest. He also excludes economic grounds. As to the legal aspects, he states the law does not forbid the induction of abortion if such is to save the life of the mother. Some authorities have extended this to the third stage mentioned above, and the author believes it can now include both mental and physical health. All acts are lawful which are done in the course of proper treatment and in the interests of life of the patient. The law, in speaking of unlawful use of instruments or drugs in regard to abortion, implies a lawful use. He says the only morally sound reasons are

medical. These are the same grounds as are justified by the law. The discussion of the paper resulted in the conclusion that the majority of the members were definitely against the growing practice of inducing abortion for the prevention of mental disorders.

EBAUGH.

Psychoanalytic Treatment of Schizophrenia. LELAND E. HINSIE (The Psychiatric Quarterly, 1927, Vol. 1, p. 313) states that, since the same life experiences operate in the psychoses as in the neuroses and we believe that psychogenesis plays an influential rôle in both, it is reasonable to try a form of therapy that offers a hopeful outlook. Only a few attempts to apply psychoanalysis to the psychoses have been made. The author feels that the turning inward of the libido in the narcissistic group can be used to advantage in a certain number of cases because of the relative absence of positive transference. He limits himself to discussion of special cases occurring in the simple, hebephrenic and catatonic types of schizophrenia in which episodic paranoid reactions have occurred. He states that he has found these favorable for psychoanalytic therapy. The technique utilized consists of observing in detail all the reactions during the height of the mental disturbance. These acute phases he considers as forms of abnormal reaction. At the first sign of positive transference from the patient an effort is made to continue the activity of the original conflicts until the patient has attained a full understanding of their origin and significance. A detailed survey of the life history is made. Other forms of therapy (occupational) may be used coincidentally. He reports two cases, respectively with four and five years of good adjustment with insight following treatment. He concludes that psychoanalysis has a definite place in the treatment of schizophrenia.

EBAUGH.

The Hypothesis of the Mechanism of the Functional Psychoses. L. C. F. CHEVANS (Jour. Mental Sciences, 1927, Vol. LXXIII, p. 402) states that the study of the human organism cannot be separated from the study of the personality and on this basis he makes a study of the functional psychoses with the assumption that the personality is primarily at fault. The personalities were studied from the standpoint of eleven items which served as a basis for comparison. He states that so far the schizophrenic would appear to be a weak character, phlegmatic temperament, decidedly hypokinetic and of normal or subnormal intelligence. The paranoiac appears to be an impracticable hyperkinetic and of intelligence rather above normal. The manic depressive makeup so far allows only the generalization that the subjects are of an active type with normal or supernormal intelligence. He states that enough cases have not yet been worked on to justify the giving of findings. He presents a case in each of the above groups and concludes that in each case the mechanism is similar, *i. e.*, the real situation is intolerable so that satisfaction is acquired in a world of fantasy. These

types differ from the normal in that the latter attack the environment and attempt to fit themselves to it or it to them. The thought world is pleasant to the patient in each type because it satisfies the repressed desires. He lays stress on the rôle of the personality as the cause of the superficiality of the reaction in the manic-depressive group or the deepness of it in schizophrenia and paranoia but states that the mechanism is the same for all cases "escape into the psychosis." (The conclusions seem justified from the cases presented, but as only single cases are given and these not in detail it is impossible to judge how far they apply.)

EBAUGH.

Clinical Contribution to Drug Addiction: The Struggle for Cure and the Conscious Reasons for Relapse. LAWRENCE KOLB (The Jour. of Nervous and Mental Diseases, 1927, Vol. 66, p. 22) states that because recent narcotic control measures have been more effective in prevention of addiction and have forced the cure of the more hopeful curable cases, the class of drug addict remaining to be treated is peculiarly liable to relapse. However, he thinks relapse has not been so frequent nor permanent cure so difficult as is commonly supposed. He presents a study of 210 cases, each of which had relapsed one to twenty times. Ninety-one per cent of these had abnormal personalities before addiction. He thinks the psychic factors leading to addiction remain the same throughout the entire period and is the primary cause for relapse. The other factors of relapse are physical dependence, memory associations, and habits which are unimportant at first but all become more intense the longer the addiction continues. He analyzes the attitude of the addicts towards their addiction and toward treatment and states that some few relapsing cases regard their addiction as beneficial, a great many more feel that having progressed so far they would be better off if no effort were made to cure them. The former accept treatment only under physical restraint and relapse immediately. The latter only because of the urging of friends, the difficulty of maintaining the habit or because they fear the law. They also relapse promptly. The medical cases of addiction become alarmed when they recognize their dependence on the drug and throw off the habit unless they have physical disease that makes use of the drug desirable or have psychopathic traits that render them susceptible. Discussing physical reasons for relapse, the author states that opium produces no permanent protoplasmic change but does produce functional changes in that the cells adjust themselves to perform most of their functions in the presence of the inhibiting drug. The withdrawal symptoms are due to an increased functional activity of practically all the organs. In general, the physical disturbances are temporary. Although the acute symptoms of withdrawal contributed toward failures of treatment, they had very little to do with relapses that occurred two weeks or more after the opiate had been withdrawn. In a few instances nervous symptoms were so grave that a return to narcotics was advisable. The psychic reasons for relapse are more important and consist of the pleasure derived from the

drug. The vast majority of addicts he divides into two general classes, those having an inebriate type of personality and those afflicted with other forms of nervous instability. A large proportion of the addicts studied deliberately addicted themselves with full knowledge of the difficulties to be encountered. Memory association and habit play an important part, so that return of the addicts to their old environment adds to the danger of relapse. Also, any frustrated desire or unsatisfied longing was in some cases of cured addicts transformed into a desire for narcotics. He states that relapses to cocaine follow the same general rules but that here the pleasurable physical thrill is greater and this is a more positive form of dissipation. There were no pure cocaine addicts in this series, but a number of mixed opiate-cocaine addicts. These mixed cases he found were subject to relapses.

EBAUGH.

A Study of the Spinal Fluid Pressure in the Differential Diagnosis of Diseases of the Spinal Cord. B. STOOKEY, and D. KLENKE (Arch. Neur. & Psychiat., 1928, 20, 84-109). Unfortunately the neurologic signs of intrinsic disease of the spinal cord so closely simulate the signs produced by neoplasms of the spinal cord or other operable lesions that differentiation on neurologic signs alone is frequently impossible. This study reports a series of cases in which the lumbar manometric test was made to distinguish operable from non-operable conditions of the spinal cord. Among the more general conclusions drawn from this study are: (1) New factors have been developed in the technique of the lumbar manometric test not in the original test of Queckenstedt. These include instantaneous touch compression, introduction of the time element, study of the manner of the rise and fall and pressure index. Therefore the term lumbar manometric test is preferred to Queckenstedt test. (2) The complete manometric chart should include three phases; the response to instantaneous touch compression, the rise and fall on deep compression and the change in pressure level after withdrawal of 7 c. c. of fluid. (3) Technical details, *e. g.*, position of the head, must be watched minutely. (4) The lumbar manometric test demonstrates an obstruction of the subarachnoid space. The level of the obstruction should be determined by the neurologic examination and not by mechanistic measures. In addition to this there is a discussion of the correlations between increase in protein content and nature of the compression, and between the former and globulin excess. The authors consider the manometric test one of the most valuable in the differential diagnosis of diseases of the spinal cord, and believe it should be a routine procedure whenever disease of the spinal cord is suspected.

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Metabolism in Epilepsy. IV. The Bicarbonate Content of the Blood. W. G. LENNOX (Arch. Neur. & Psychiat., 1928, 20, 155-161). Measurement of the plasma bicarbonate in 100 cases shows, as do data presented by

other authors, that, in the main, patients with epilepsy show a normal condition of acid-base equilibrium in the body fluids. Abnormality when present is in the direction of increased alkalinity.

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Forced Drainage of the Cerebrospinal Fluid. L. S. KUBIE (Arch. Neur. & Psychiat., 1928, 19, 997-1005). In a wide variety of infections of the nervous system in man the different types of cells are not homogeneously distributed throughout all fractions of the cerebrospinal fluid. In a significant number of cases the last fractions that appear on lumbar puncture contain a much higher percentage of lymphocytes than the fluid which drains out first. The administration of hypotonic fluids during lumbar puncture causes an abundant additional flow of cerebrospinal fluid without subjective distress, respiratory difficulties or evidence of diffuse swelling of the brain tissues. Evidence is accumulating that under these conditions the formation of cerebrospinal fluid occurs not only through the choroid plexus but also by transudation through all of the vessels of the parenchyma. It has been shown that it is both safe and rational to combine a maximal forcing of fluids with the principle of continuous or frequent drainage of the cerebrospinal fluid in the treatment of patients with infectious diseases of the central nervous system.

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Experiences with Encephalography via the Lumbar Route. E. D. FRIEDMAN, W. SNOW, and J. KASANIN (Arch. Neur. & Psychiat., 1928, 19, 762-795). The authors find that endolumbar insufflation of air for diagnostic purposes is a safe procedure. It elucidates many phases of cerebral diagnosis; it is less likely to give rise to serious complications than the injection of air through a trephine orifice. For persons with well marked tumors of the posterior fossa, however, and for the demonstration of obstructive internal hydrocephalus, the Dandy procedure (cerebral method) still remains the preferable one.

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Influence of Malarial Treatment on the Spinal Fluid in General Paralysis. H. A. BUNKER (Arch. Neur. & Psychiat., 1928, 19, 478-487). Observations on the cell count in 90 cases appear to be of prognostic significance only in a negative sense. A satisfactory response is not necessarily of favorable import; but the few cases in which reduction in the cell count does not take place with more or less promptitude or in which pleocytosis reappears, and those in which the total protein in the spinal fluid remains at or returns to a level in excess of 100 mg. per hundred c. c., seem to offer definite evidence of a minimum therapeutic result. The behavior of the Wasser-

mann reaction in the spinal fluid does not seem to possess a decisive significance; but whether the cases with a more negative reaction will compare favorably with those with a less negative one regarding the ultimate duration of the therapeutic result achieved is a question to be answered in the future.

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Clinical Note on Staphylococcus Septicemia with Diffuse Involvement of the Nervous System (Purulent Meningitis; Encephalomyelitis with Involvement of the Basal Ganglia). E. F. WAHL (J. Nerv. & Ment. Dis., 1928, 67, 351-355). A case history of staphylococcus septicemia with secondary involvement of the spinal cord, brain and meninges where there is no history of an attack of lethargic (epidemic) encephalitis before or accompanying the staphylococcus infection.

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Localization in Animals of Streptococci from Cases of Epidemic Hiccup, Encephalitis, Spasmodic Torticollis and Chorea. E. C. ROSENOW (Arch. Neur. & Psychiat., 1928, 19, 424-436). Another series of experiments with animals performed with material from foci of infection or throats of patients suffering from various diseases of the nervous system show results which corroborate and extend former observations. The streptococci isolated in each of these conditions, while much alike, possess very different localizing and symptom-producing power when injected intracerebrally into animals and readily lose this property, especially on aerobic cultivation. The fact that the streptococcus, having specific effects and the power to produce a specific poison, has been isolated long after onset indicates that the late manifestations of encephalitis and allied conditions are not sequels but are due to the activity of the causative organisms or its toxin, as has been especially emphasized by Freeman. It is of course realized that the results obtained are not absolute proof of the etiologic relationship of the streptococcus isolated, but in consideration of all the facts the tentative conclusion seems warranted that this organism has etiologic significance in each of the diseases studied.

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Book Reviews.

A Manual of Individual Mental Tests and Testing, by AUGUSTA F. BRONNER, WILLIAM HEALEY, GLADYS M. LOWE, MYRA E. SHIMBERG. (Boston: Little, Brown and Company, 1927.)

Perhaps no line of scientific progress has been so feverishly embraced and so scornfully assailed as has the work in so-called psychometrics. Assuming the usual validity of a middleground position, it seems probable that there is much legitimate value in the derivations of accurate testing programs and much maliciousness of equal potential in the intelligence measuring of credulous optimists. The danger here lies not so much in the individual errors as in the inevitable loss of repute in the eyes of medical and other thoroughly scientific workers. That intelligence testing has suffered just such loss of deserved esteem as a result of the ridiculous reverence for text findings on the part of non-critical enthusiasts cannot for a moment be doubted.

The status of the testing program appears to us to be somewhat as follows: A valuable line of attack has been uncovered. This line of work is still in process of development, is still imperfect and is still somewhat obscure as far as interpretative value is concerned. It is of paramount importance to this work and to its reputation that it be broadened and weeded out by accurate, objective devotees of research. At the moment we cannot think of any recent contribution of this nature which equals that of the work done by Bronner, Healy, Lowe and Shimberg which they have published in their book, "A Manual of Individual Mental Tests and Testing." The book is the result of many years of carefully controlled thinking along the lines of mental measurements. Many tests which have been used for years as supplementary to the Binet scale are discussed, their validity checked, their manner of presentation standardized and their norms established; and several new and interesting tests of special abilities are presented here for the first time. As the title implies, the material is limited strictly to a discussion of the tests of individual mental endowment.

In the introduction there is a well written and critically conceived statement of the authors' views on the deplorably inadequate tendency to confine mental testing to an age level scale. Without belittling in any sense the value of the mental age concept and the even more conveniently used "intelligence quotient" in our preliminary orientation concerning the individual, anyone who has had the opportunity of studying individuals closely

will have to admit that no numerical concept of intelligence can possibly be adequate. Even the claim that "general intelligence" only is measured is spurious since it is well known that the result obtained in any of the scales so far devised is influenced markedly by special abilities or disabilities to such an extent that a person who by every other criterion would be considered mentally defective may attain a rating of normal or near normal intelligence. Such specialized ability may be found in memory tests, in auditory span for digits, or in unusual ability to handle words. Then too, in the scales commonly used there is little consideration given to the measuring of the individual's ability to handle concrete material and the so-called "hand minded" child rates too low. Thorndike's conception of the three types of intelligence, abstract, mechanical and social, is quoted: "The facts of everyday life, when inspected critically, indicate that a man has not some one amount of one kind of intelligence but varying amounts of different intelligences. No man is equally intelligent for all sorts of problems." This book deals with the study of differences in mental capacities between individuals and in the same individual.

Part two of the manual deals with the individual tests which have been arbitrarily divided into three groups: (1) Language and ideational; (2) memory and learning; and (3) mechanical and assembly tests. Each test occupies one page with a drawing to represent the test whenever possible, a description of the material, directions for giving and scoring and the available norms. Directly opposite the name of the test is given the number of subjects used in their establishment. One chapter in this part of the manual is devoted to "inadequately standardized tests" and indicates work for years to come.

Part three deals with the interpretation of the tests, their probable worth in diagnosis, the question of variability and the question of the normal maturing of mental processes. I was especially interested to learn that in the *Aussage* or testimony test where the individual's ability to report faithfully what he has seen is measured, there were almost identical results obtained in all age groups above eight years. "The norms for items correctly enumerated are almost precisely similar from eight years to the adult level, not only in regard to the averages but also the range. The same is true for errors, fictional items, and accepted suggestions. Thus the performance clearly depends on personality traits or special abilities, and the findings have deep legal implications. . . . Important clues may be obtained concerning the subject's powers of observation, his imagination, his suggestibility, his veracity and sometimes his powers of dramatization. The work done with this test throws much light on the vexed question of the validity of testimony. Apparently, age has little to do with the veracity of the report. A child of ten is potentially as likely to be correct as an adult. Moreover, experience and training contribute little. A group of professional men, lawyers and the

like, were tested, as well as 377 random subjects mentioned in part two. The average items correct for the first group was slightly lower than for the latter. There were more errors, more 'don't knows,' and the same number of fictional items."

The bibliography has been worked out with care and covers twenty pages of the volume. This alone is of great value to workers in the field of mental tests. In the short time that this manual has been out we have begun to find it of unparalleled utility.

The publishers of the book have taken great care in the presentation and preparation of the material and it can be heartily recommended from every viewpoint.

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Nerve Tracts of the Brain and Cord. By WILLIAM KEILLER, F. R. C. S.,
Edin., Professor of Anatomy and Applied Anatomy, University of
Texas. (New York: The Macmillan Co., 1927.)

This textbook on the anatomy of the nervous system certainly represents an improvement in the method of teaching neuro-anatomy. Dr. Keiller's book disregards the old fashion of presenting anatomy merely through description, and follows a new line of teaching which is far better and far more interesting.

In the first part of the book the anatomy of the nerve tracts is studied. In the second part the physiology of the neurone is considered, while in the third part the main principles of applied neurology are developed. This manner of presenting the material helps the student greatly and makes the study of neuro-anatomy a less arid one because it immediately emphasizes the importance of an anatomical basis for a clearer understanding of clinical neurological pictures.

Although the subject is presented very clearly, it could possibly have been made even simpler by describing every single system, as for example the olfactory system, the optic system, the pyramidal system, the extrapyramidal system, etc., following the tracts from their beginning to their end through the various intermediate stations, and by the discussion of the physiology and pathology of each system immediately following the anatomical description.

The pictures are, unfortunately, collected at the end of the book instead of being scattered throughout, and some of them are too small to be easily studied.

Altogether, however, Dr. Keiller's book is a very valuable one and certainly represents a fundamental piece of work.

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An Introduction to Forensic Psychiatry in the Criminal Courts. By W. NORWOOD EAST, M. D., (Lond.) Medical Inspector H. M. Prisons, England and Wales; Lecturer on Criminology and Forensic Psychiatry, Maudsley Hospital, etc. (London: J. & A. Churchill; New York: Wm. Wood, 1927.)

Crime and Insanity. By W. C. SULLIVAN, M. D., Medical Superintendent, Broadmoor Criminal Lunatic Asylum. (London: Edward Arnold & Co.; New York: Longmans Green & Co., 1924.)

These two books are of a kind. Both of them attempt to adapt psychiatry to the requirements of the legal system as it stands. Both of them cite great numbers of cases to illustrate crime occurring in the course of and presumably as a direct manifestation of the various major psychotic entities. For this reason they afford interesting collections of criminal cases in which the "insanity" of the criminal is beyond serious question. Of the two, East—who is a lecturer on criminology at Maudsley Hospital and medical inspector of the prisons in England and Wales—gives much the more carefully selected and completely recorded cases.

Both of them lack sadly in any evidences of grasp of the modern problems in criminology and psychiatry as it relates to crime. Neither of them have anything to say about the actual motivation of crime, or the contributions of psychiatry in the improved disposal of the convicted criminal. Both of them assume that a guilty criminal goes either to jail or to the asylum, that it is a question of punishment or commitment. No other issues seem to have disturbed either author. The fact that a criminal whose antisocial propensities are the result of a personality upset of the type which is classifiable in the psychotic categories is relatively rare does not seem to have stimulated either author to attempt a broader view of the psychiatric aspects of crime.

So it stands that here we have two English books almost as bad as, if not a little worse than, some of the recent American books on criminology written by psychiatrists. The English books are a little better in that their cases are better selected, but they are a little worse in that the American books have at least a broader conception of the field, even although few of them contribute much to a better understanding of it.

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I. Intracranial Tumors Among Mental Hospital Patients. A Histopathological Report with Special Attention to the Tumors of the Glioma Series. <i>Leo M. Davidoff and Armando Ferraro</i>	599
II. The Three Levels of Cortical Elaboration in Relation to Certain Psychiatric Symptoms. <i>Samuel T. Orton</i>	647
III. The Influence of Modern Psychopathology in State Hospital Practice. <i>William C. Garvin</i>	661
IV. Association of the Psychoses with the Puerperium. <i>Eleanora B. Saunders</i>	669
V. Recent Methods in the Treatment of General Paralysis. A Brief Survey. <i>Henry A. Bunker, Jr.</i>	681
VI. The Study of Personality. <i>Lawson G. Lowrey</i>	695
VII. Sociological Factors Challenging the Practice of Psychiatry in a Metropolitan District. <i>James S. Plant</i>	705
VIII. Some of the Means for Guidance Approach and Appeal in the Psychoses. <i>Richard Dewey</i>	717
IX. Brief Report of the Use of Sodium Luminal in Mental and Nervous Diseases. <i>Lauren H. Smith</i>	727
X. The Dynamics of Schizophrenic Reactions Related to Pregnancy and Childbirth. <i>Gregory Zilboorg</i>	733
XI. Notes and Comment: The Royal Medico-Psychological Association.....	768
XII. Association and Hospital Notes and News: The Assassination of Dr. Ransom H. Sartwell.—The American Psychiatric Association, Officers and Committees, 1928-1929.—Applicants for Membership or Fellowship in The American Psychiatric Association to be Proposed, 1929.....	771
XIII. Abstracts and Extracts: The Incidence of Intracranial Tumors Without "Choked Disk" in One Year's Series of Cases. <i>William P. Van Wagenen</i> .—The Problem Employee—His Study and Treatment. <i>V. V. Anderson</i> .—Influenza in Reference to Onset of Acute Psychoses. <i>T. C. Graves</i> .—Major Hysteria with Attacks of Impaired Circulation of the Left Upper Limb. <i>William G. Spiller</i> .—Exogene Fakoren bei Schizophrenen Psychosen. <i>M. Fischer</i>	778
XIV. Book Reviews: Insanity and Law, A Treatise on Forensic Psychiatry. By <i>H. Douglas Singer, M. D., M. R. C. P., etc.</i> , and <i>William O. Krohn, A. M., M. D., Ph. D., etc.</i> (Philadelphia: P. Blakiston's Sons Co., 1924).—Insanity and The Criminal Law. By <i>William A. White, M. D., etc.</i> (New York: Macmillan Co., 1928).....	781

AMERICAN JOURNAL OF PSYCHIATRY

INTRACRANIAL TUMORS AMONG MENTAL HOSPITAL PATIENTS.

A HISTOPATHOLOGICAL REPORT WITH SPECIAL ATTENTION TO THE TUMORS OF THE GLIOMA SERIES.

By LEO M. DAVIDOFF, M. D., AND ARMANDO FERRARO, M. D.,
Of the New York State Psychiatric Institute, Ward's Island, New York.

OUTLINE

PAGE

A. Introduction	599
B. Statistical considerations	601
C. Mental symptoms	603
D. Author's material	605
1. Classification of brain tumors.....	605
a. Tumors of the glioma group.....	606
1. Spongioblastoma multiforme	607
a. Clinical aspect	607
b. Gross description	611
c. Microscopic appearance	611
2. Combined gliomas	614
3. Astrocytoma	621
4. Spongioblastoma unipolare	624
5. Ependymoma	626
6. Ependymoblastoma	632
7. Pinealoma	635
8. Oligodendroglioma	638
E. Comment and summary	639
F. Conclusions	642

INTRODUCTION.

Fifty years ago brain tumors were, as a rule, recognized only at the post-mortem table, and interest in them was academic and usually superficial. Twenty-five years later, the diagnosis was not only made upon the living patient, but the exact or approximate locations of the growths in the brain were frequently determined

accurately upon the basis of clinical signs. This gave rise to a school of pioneers in neurosurgery whose efforts soon brought into a practical light the contentions of pathologists as to the benignity or malignancy of neoplasms arising in the brain or intracranial cavity generally.

It was soon learnt, of course, that frequently morphologically benign growths, owing to their inaccessibility or great vascularity, were fatal to their hosts.

As surgical technique improved, however, access was gained to what were formerly considered inaccessible places. Finesse in handling tissues, mechanical as well as biological improvements in hemostasis, improvement in diagnosis, and, above all, increase in surgical experience and judgment as to when and when not to operate, soon made it possible to hope for a cure, partial or complete, by surgery, of a considerable proportion of patients who were afflicted with intracranial tumors of a histologically benign character. This still left a large number of tumors inaccessible to surgery, or, owing to some other technical difficulty, not removable without fatality.

In addition to this, nearly 50 per cent of brain tumors belong to the glioma group, which, although never metastasizing, are, however, owing to their progressive and infiltrating growth, considered as malignant tumors of the brain. Experience for a number of years with these neoplasms has shown that some patients who prove at operation or autopsy to have had a glioma, had in spite of this fact given a remarkably long history of symptoms, thus suggesting a very slow growth of the tumor. Quite a few others with gliomatous tumors had done remarkably well for a number of years after what appeared to be a complete removal of the growth. A few had even been apparently cured.

It had been known for a long time, of course, that all gliomatous tumors were not alike, and this experience with the great variation in the clinical course of patients with gliomas of the brain, naturally led, on the part of several investigators, to attempt to correlate the difference in the clinical histories with the morphological differences in the neoplasms. The culmination of these efforts came in the form of a monograph by Bailey and Cushing^{*} who, on the basis of an incomparable number of cases, expertly studied both clinically and histologically, were able to classify the tumors of the glioma group into a number of given types. Gener-

ally speaking, they found that the predominating type of cells in any given glioma resembles the cells in one stage or another of the course of development of the neuroglia from the original epithelium of the neural groove to the adult astrocyte. Moreover, they found, as is true of tumors elsewhere in the body, that the more undifferentiated the cells of which the tumor is composed, the more malignant the tumor.

We look upon their book as a splendid pioneer work. On the other hand, owing to difficulties in histological technique, as yet unsurmounted, and the fact that many of their specimens were only fragments removed at operation, much is still to be done to elucidate clearly the exact nature of the gliomas. We are, therefore, offering a relatively small number of cases which have the advantage, however, of presenting for study complete brains, including the tumors, removed at autopsy. For the most part, these have not been subjected to a possible change in their morphology as a result of surgical intervention. Nor has the natural course of the disease, with but few exceptions, been lengthened or decreased by any attempt to remove the tumor. This gave us an opportunity to judge the value of surgery by comparing the progress of the disease in our unoperated cases with those of others who had been operated upon.

STATISTICAL CONSIDERATIONS.

In 26 years 1450 anatomical specimens have accumulated in the collection of the New York State Psychiatric Institute. These consist largely of brains, contributed for the most part by the pathological laboratories of the 16 New York state hospitals for mental diseases, through the cooperation of their superintendents and pathologists. This collection by no means represents the combined number of brains removed at autopsy in these hospitals, nor even a representative fraction of them. The specimens were collected with a view toward the particular problems which were being studied in the Institute at any given time. As a result, 90 of our specimens are brain tumors, which is obviously too high a proportion of all cases (practically 6 per cent of 1450).

A more accurate idea of the proportion of patients suffering from tumor of the brain among inmates of state hospitals for mental disease may be gained from the accompanying table (Table 1), the figures of which were obtained from the data pub-

TABLE I.

Year	Census June 30		Discharged Dead		Discharged Recovered		Discharged Improved		Total Discharged		Census + Discharged During Year Ending June 30		Discharged During Year Ending June 30	
	Total†	†B. T.	Total	B. T.	Total	B. T.	%	Total	B. T.	Total	B. T.	Total	B. T.	Per Cent
1921-22.....	40,891	14	3,674	9	1,789	0	0	1,732	1	7,195	10	48,086	24	.049
1922-23.....	41,302	15	3,955	13	1,825	0	0	1,877	0	7,057	13	48,959	28	.057
1923-24.....	42,252	18	3,558	15	1,720	0	0	1,978	0	7,256	15	49,508	33	.066
1924-25.....	43,601	22	3,726	7	1,735	0	0	1,931	2	7,392	9	50,993	31	.060
1925-26.....	44,419	24	4,107	6	1,771	1		1,959	1	7,837	8	52,256	32	.061

* State of New York, J. B. Lyon Co., Albany.
 34th Annual Report of the State Hospital Commission, July 1, 1921, to June 30, 1922.
 35th Annual Report of the State Hospital Commission, July 1, 1922, to June 30, 1923.
 36th Annual Report of the State Hospital Commission, July 1, 1923, to June 30, 1924.
 37th Annual Report of the State Hospital Commission, July 1, 1924, to June 30, 1925.
 38th Annual Report of the State Hospital Commission, July 1, 1925, to June 30, 1926.

† B. T. = brain tumor.

lished by the New York State Hospital Commission during the five years beginning July 1, 1921, to June 30, 1926. It will be seen that during none of these years, which represent the years of greatest activity so far studied, was the percentage of patients with brain tumor greater than 0.066 per cent. Owing to the high mortality among brain tumor patients, their turnover is very rapid as compared to all other patients. Thus the average number of total discharges during each of these five years compared to the average total number of patients treated each year is only 14.9 per cent, whereas the average number of brain tumor patients discharged, compared to the total number of brain tumor patients is 37.1 per cent. Allowing even for this, and for a number of tumor patients that undoubtedly go undiagnosed beyond the point of "organic brain disease," the total percentage of brain tumor cases among state hospital patients can hardly be estimated as much greater than 0.1+ per cent. Blackburn²² found 29 intracranial tumors among 1642 autopsies, 1.7 per cent in cases of mental disease. Knapp²³ states, in discussing the frequency of brain tumors among psychotic patients, that Fischer found only one in 318 autopsies (0.21 per cent) and Leubensher four in 350 (1.1 per cent), whereas he himself working in a general hospital found 101 brain tumors in 5069 autopsies (1.9 per cent) on sane individuals. Bramwell,²⁴ moreover, calls attention to the fact that the head is always examined in doing autopsies upon the insane, whereas this is not so in autopsies carried out in a general hospital.

The small percentage of state hospital patients with brain tumor is nevertheless an important one since it represents a group which is increasingly more successfully treated if surgical means are applied. Surgical treatment of brain tumors among psychotic patients, however, is still to be developed, and, as a consequence, the group here to be reported is important from the point of view of those especially interested in tumors of the brain aside from their mental aspect, because it represents a series of cases studied by modern histological methods whose natural course has been practically uninterfered with by surgical intervention.

MENTAL SYMPTOMS.

Practically all patients with brain tumor show a certain degree of mental impairment, in the form of apathy, defective attention and concentration, dullness of intellect and slowness of response.

In the later stages dementia, drowsiness, stupor and coma supervene. Schuster¹¹ in 775 cases of brain tumor with mental symptoms collected from the literature, found 423 to show such changes. The remaining 352 manifested states resembling other psychoses such as "epileptic character," maniacal and similar states (95); melancholia or milder depression (57); confusion and hallucinatory delirium (52); symptoms resembling those of general paresis (29); euphoria, moria, hypomania (23); chronic paranoid states (19); symptoms resembling those in neurasthenia and hysteria (15), etc.

Baruk,¹² in a very thorough recent study of 55 personally-observed cases, concludes that the most important factor in mental disturbances of patients with brain tumor is the accompanying increased intracranial pressure, which causes mental changes. Other mental symptoms depend upon location of the tumor. In the case of frontal tumors the psychic changes may come first and dominate the picture throughout, resembling sometimes the mental state in general paresis. Affective changes, moral perversions, etc., may be seen. This is largely also true of tumors of the corpus callosum. In basal tumors, changes in habits of sleep are prominent symptoms. Somnolence is characteristic of all basal tumors, true sleep, especially of those in the region of the infundibulum and tuber cinerium. These patients are likely to resemble those with encephalitis lethargica. Tumors of the parieto-temporo-occipital region are apt to show aphasia, apraxia, agnosia and sensory hallucinations.

It seems nevertheless true, as Bruns,¹³ Gordon¹⁴ and others believe, that specific psychoses in individuals with brain tumor are often unassociated with the growth except in so far as it is instrumental in precipitating a potential psychosis in sensitive persons. The fact that so few brain tumors occur among psychotic patients is in itself evidence that tumors are not among the important causative agents of specific types of psychoses.

A closer consideration of the relation of the brain tumor to the psychosis is beyond the sphere of the pathologist who is separated from the living patient both by space and time, and whose only knowledge of the clinical condition is derived from a summary of another's findings. It is, nevertheless, striking as one peruses these summaries to find that frequently the apparent psychosis is simply a manifestation of apraxia, aphasia or even a simple organic

loss of control of vegetative functions which are interpreted as mental deterioration by the family physician and particularly the patient's family itself, thus leading to commitment of the sufferer to an institution for mental diseases.

AUTHORS' MATERIAL.

Of the 90 cases in this series, fifteen, owing to insufficient data or insufficient material for study with modern methods, were excluded from consideration. The remaining 75 tumors consisted of the following types: gliomas (varia), 36; pituitary tumors, 4; meningiomas, 23; acoustic neuromas, 2; congenital tumors, 6 (cholesteatomas, 3; craniopharyngeal pouch tumors, 3); metastatic tumor, 2; tuberculomas, 2. Syphilomas large enough to give tumor symptoms were absent in the series, although several cases were present in the collection showing microscopic gummata of the meninges as well as of the brain itself.

TABLE II

	Peter Bent Brigham Hospi- tal up to October 1, 1925 Per cent	Psychiatric Institute of N. Y. up to July 1, 1928 Per cent
Gliomas	42.4	48
Pituitary tumors	19.9	5.3
Meningiomas	12.5	30.6
Acoustic neuromas	9.5	2.6
Congenital tumors	6.4	7.8
Metastases	3.1	2.6
Blood vessel tumors.....	1.9	0
Tuberculomas	1.4	2.6
Syphilomas .....	.7	0
Papillomas .....	.7	0
Miscellaneous	1.3	0

Table II shows the relative incidence of the various types of tumors as compared with the much larger group of the Peter Bent Brigham Hospital in Boston from the service of Dr. Harvey Cushing. It is obvious that in both series the gliomas make up nearly half the total number. The remaining 52 to 57 per cent are somewhat differently distributed in the two series. Whereas in the Boston collection nearly 20 per cent is represented by the tumors of the pituitary body and about 12.5 per cent by the meningeal

tumors, in our series the meningiomas make up 30 per cent of the total, while only 5.3 per cent are pituitary tumors. The discrepancy, without taking into account our modest numbers, is explainable on the basis of the fact that meningiomas are frequently "silent" tumors even after reaching great size and may eventually give rise—especially if located in the frontal region—to symptoms leading the patient to a psychiatrist rather than to a surgeon. The high percentage of hypophyseal tumors from the service of Dr. Cushing is a local variation owing to the special interest taken in conditions associated with these growths in the Boston clinic. In this we are borne out by the fact that Tooth,⁴⁶ in a series of 500 cases of brain tumor from a general neurological clinic, found only 3 per cent located in the pituitary gland.

While there is still much to learn from the morphological study of all types of tumors in the cranial cavity, the one type which is least known and which is at present chiefly occupying workers in this field is the glioma. In the group of specimens at our command thirty-six are gliomatous tumors. They consist of the following subvarieties: spongioblastoma multiforme (24), astrocytoma (6), ependymoma (2), ependymoblastoma (1), pinealoma (1), spongioblastoma unipolare (1), oligodendroglioma (1).

Table III (first column) shows Bailey's⁸ figures in terms of

TABLE III

	Dr. Cushing's Collection July 1, 1927 Per cent	New York Psychiatric Institute July 1, 1927 Per cent
Neuroepithelioma	0.26	0
Medulloblastoma	14.50	0
Pinealoma	2.10	2.7
Ependymoma	4.20	8.3
Spongioblastoma multiforme	30.90	66.6
Spongioblastoma unipolare	3.15	2.7
Astroblastoma	5.25	0
Astrocytoma	36.80	16.6
Oligodendroglioma	3.15	2.7
Ganglioneuroma	0.26	0

percentage covering the classified tumors of the glioma series in Dr. Cushing's collection up to January 1, 1927. The second column shows the distribution of our cases according to Bailey's modified scheme.

SPONGIOBLASTOMA MULTIFORME.

The very numerous stages, through which the neuroglia passes during embryonic life before reaching the completely differentiated condition of protoplasmic and fibrillary macroglia as well as oligodendroglia, all undoubtedly contribute tumor growths with a preponderance of cells belonging to any one given stage. Ribbert²⁸ would like to classify them all as "spongioblastoma," leaving the term "glioma" to apply only to those tumors which consist of cells closely resembling the adult elements. In a sense this is analogous to the general division of epithelial tumors into "carcinoma" and "adenoma," but even here modifying names have to be added to distinguish tumors from various organs as well as tumors arising from the same organ but from cells corresponding to different embryonic periods.

In the case of neoplasms of the central nervous system, moreover, the embryonic stage from the cells of which many of the growths are made up is frequently quite clear so that specific names may be properly applied. Growths from both ends of the scale, that is, the tumors arising from the most differentiated, and the least differentiated cells have thus been fairly satisfactorily named. The tumors arising from cells in the intermediary stages of development, however, have resisted classification owing to their greatly varying qualities and characteristics.

Clinical Aspect.—Clinically the spongioblastomas are rapidly fatal owing to their fulminating growth, a fact which led Stroebe²⁹ (1895) and many who followed him to interpret the proliferation of the adventitial cells of the tumor blood vessels as sarcomatous—thus giving rise to the descriptive, if inaccurate, name of "gliosarcoma." This term has implications incompatible with the modern conception of tumor growth, which holds that two tissues from different embryonic layers do not both participate actively in the formation of neoplasms except in embryomas. The euphemism of Borst³⁰ (1902) who proposed *gliosarcomotodes* as a compromise has done nothing to dispel the original misconception and has not been favorably received, nor have a host of other names like *giant cell glioma*, *glioma ganglionare*, *myxoglioma*, *adenoglioma*, *glioma teleangiectaticum*, *neuro-epithelioma gliomatosa*, etc., served to replace it. The name "gliosarcoma" was, therefore, not seriously opposed until many years later by Kaufman³¹ (1911), Strauss and

Globus⁴⁴ (1918), Ribbert²⁸ (1918), Greenfield²⁴ (1919), Roussy, Lhermitte and Cornil⁴⁰ (1924), and Bailey and Cushing⁹ (1925).

As a result of a conference between Strauss and Globus²² on the one hand and Cushing and Bailey on the other, the name *spongioblastome multiforme* has been adopted for these growths. This implies that the tumor arises from immature glial cells and that both the gross appearance of the tumor in different parts as well as the morphology of the cells are protein in character. At first glance, therefore, spongioblastoma multiforme would seem to be a very satisfactory name. But a closer acquaintance with the tumors teaches one that although in some areas the cells resemble the bipolar spongioblasts, in other areas there is only a distant resemblance of the tumor cells to these embryonic glial elements. And still other areas frequently occur in this type of growth with cells resembling embryonic types as primitive as the primary medullary epithelium. On the other hand numerous cells are seen closely similar to completely differentiated astrocytes. On the basis of these facts, and because we feel very strongly that a restudy of the development of the oligodendroglia, now that the improved technique of Globus²¹ and Penfield²⁷ is available, may result in an elucidation of the origin of many of the "atypical" cells occurring in this growth, we consider that the name *spongioblastoma multiforme* is inadequate, and are inclined to accept the term *glioblastoma multiforme*, suggested by Bailey and Cushing as more accurately implying its characteristic morphological variability. It would, however, be short-sighted to believe that any name based on our knowledge thus far acquired of these growths will be permanently satisfactory.

Twenty-four of the 36 gliomas (66 per cent) in our series fall into this group. This is an astonishingly large percentage especially when compared with the figures from the clinic of Dr. Cushing where 117 spongioblastomas multiforme occurred among 378 gliomas (30 per cent). A glance through our histories, however, shows that the almost dramatic rapidity of the progress of symptoms associated with these neoplasms makes of their victims acute social problems which are met by the confinement of the individuals in state hospitals. Three of our patients, for example, were picked up in the streets wandering aimlessly, improperly clad and disoriented while many of the others, as noted above, were so rapidly

reduced from apparent good health to helpless invalidism and irresponsibility, that their families had no time to adjust themselves to the patients' care at home, as is often done in cases with the less rapidly growing intracranial tumors.

About half of the spongioblastomas multiforme were located in so-called silent areas of the brain viz: the right temporal, right frontal, and left frontal lobes. Five were located chiefly in the left temporal lobe; four occupied for the most part the corpus callosum from which they extended into the corona radiata. The rest were scattered, one occurring in each of the following locations: medulla oblongata, basal ganglia, left parieto-occipital lobe, cerebellum, right motor cortex. It may be seen from their locations that more than one-third of these tumors were so situated as to give rise to symptoms of aphasia or apraxia. As previously noted, these symptoms might easily be looked upon as evidence of dementia unless the psychiatrist, in whose practice brain tumors are rare occurrences, is nevertheless on the lookout for their appearance. A striking example in this group was a patient who was admitted to the hospital as markedly deteriorated because of such peculiar actions as urinating in the empty dishes after being fed, or trying to put his bathrobe on as if it were trousers. Investigation, however, proved that he frequently vomited, had markedly choked discs, and at autopsy a large tumor, occupying the entire anterior portion of the corpus callosum and to a large extent the white matter of both frontal lobes, was found. That the regional distribution in our cases is an uncommon one for patients not treated as insane, may be seen by comparing ours with Tooth's statistics. Among 127 gliomas (all types) in his series, only six occurred largely confined to the corona radiata or corpus callosum, 17 in the temporosphenoidal region (right and left), while 25 were found in the central convolutions and 38 in the frontal lobes.

The average age on admission of patients with these tumors to the hospital was 51 years—distinctly higher than the average age on admission of Cushing's patients, which was 41 years. But the greatest incidence we found, as he did, to be in the fifth decade (nine cases). Our youngest patient was 28 and the oldest one 70 on entrance to the hospital.

Bailey and Cushing found that the average survival period from the beginning of symptoms of their 117 patients with spon-

gioblastoma multiforme was 12 months. All but five had been operated. The five unoperated ones survived for only three months on the average, whereas among the operated patients there were five with a survival period of over three years. They call attention to the fact that all these long survivals were in patients whose symptoms began with focal epilepsy. In these cases an early operation often undoubtedly contributed to a longer post-operative survival period than is the case with tumors operated at more advanced stages of growth; but it is obviously also due to the fact that the situation of the tumor was such as to give rise to characteristic symptoms very soon after the inception of growth. This seems to signify that tumors as malignant even as these when growing in silent areas may be present for years without any suspicion on the part of their hosts. Studies of survival periods are, nevertheless, important in a relative sense, since similar or even longer periods during which their presence is unrecognized undoubtedly exist in cases with more slowly growing tumors.

In six of our twenty-four cases of spongioblastoma multiforme the absence of relatives and the mental state of the patients precluded the possibility of obtaining a reliable history. In the remaining 18 a fairly accurate history of onset of symptoms was available. Seventeen did not survive more than an average of 6.2 months from the beginning of symptoms characteristic of brain tumor. The remaining one had periodic generalized convulsions unassociated with other tumor symptoms for several years prior to the onset of headache which began two years before he died. Failing vision accompanied by choked discs appeared three months before he died, when a subtemporal decompression was done. This, and two others who had exploratory craniotomies done, were our only patients with spongioblastoma multiforme in whom any kind of operative interference was attempted. Assuming that his symptoms lasted for five years, and including him in the average, the survival period for the entire group is still only 9.1 months.

It is hazardous to speculate on the strength of such small numbers, but it would seem that even in the case of this most discouraging type of tumor of the brain something can be done to prolong the life by surgical treatment. Indeed, in the five cases of Cushing just cited, at least, it is not a matter of speculation, for life, and even useful, active life, was extended for a longer or shorter time in each individual.

Gross Characteristics.—On transecting a brain containing a spongioblastoma multiforme, the growth is seen to infiltrate the surrounding nervous tissue. It is seldom found on the brain surface, although it often reaches the outer layers of the cortex. Owing to necrotic areas in various stages of development or repair resulting from thrombosis or rupture of vessels in its large vascular bed, one may find cysts or areas of softening—often filled with old or fresh blood—or dense connective tissue scars. Many times the entire center of the tumor is necrotic or cicatricial, and only the advancing edge of it invading the brain shows the soft, grayish pink, semitranslucent appearance characteristic of the tumor tissue when seen before fixation. Taken in conjunction with the brief clinical history, indeed, even without considering its short course of development, it is usually a very large tumor, often occupying the greater part of an entire hemisphere as well as extending across the corpus callosum to the other side. As shown above by our statistics, this neoplasm has a predilection for the cerebral hemispheres, rarely occurring primarily in the brain stem or cerebellum. Globus and Strauss²² call attention to the multiple centers of growth in distant parts of the same tumor.

Microscopic Appearance.—Technique; Practically all our specimens were fixed *in toto* in formaldehyde. Some of them had been in this preservative for over twenty years. By applying the Globus and Penfield modifications to the methods of Cajal and del Rio Hortega, however, fairly satisfactory preparations could be obtained with the gold sublimate and silver carbonate procedures for astrocytes on frozen sections. Hæmotoxylin and eosin, and Fettescu preparations, as well as Cajal's method for neurofibrillæ, and Hortega's first and fourth variants of Achucarro's method were also carried out on the frozen sections cut from several blocks from different parts of each tumor. What remained of each block was embedded in paraffin and the sections stained with hæmotoxylin and eosin again, Loyez's method for myelin sheaths, the Bielschowsky-Plein stain for Nissl bodies, and Perdrau's method for connective tissue fibrillæ.

Hortega's first variant of Achucarro's method sometimes stains neuroglia fibrillæ very beautifully, but this stain is far from specific. These fibres are best shown by Mallory's phosphotungstic acid hæmotoxylin or Bailey's ethyl-violet orange-G stain. These

two methods were originally intended to be carried out on Zenker-fixed material. In the course of our studies it developed, however, that if blocks or even sections of tissue originally fixed in formaldehyde are treated with a strong ammonia solution and refixed in Zenker's fluid, preparations may be obtained with the above stains almost as beautiful as those made on tissue originally fixed in Zenker's solution."

An outstanding characteristic of the microscopic as well as gross appearance presented by the spongioblastoma multiforme is the presence of large areas in various stages of necrosis, including complete repair by connective tissue. Even where tumor cells are still present, vacuolization, mucous degeneration and the presence of fatty products of degeneration give evidence of widespread destruction. The numerous giant cells (see Fig. 33) present in this type of tumor are also looked upon by some authors as evidence of degeneration, representing cells which have failed to complete their division. They do, in fact, usually show a hyaline condition of their cytoplasm and fatty granulations when examined with stains for neutral fat. A very characteristic structure of these tumors is what Bailey has named the "pseudo-palisade formation" (see Fig. 11). This consists of round, oval or elongated, pale areas surrounded by cells, for the most part containing pyknotic nuclei. When stained for fat the pale areas in the center prove to contain much fatty debris and the surrounding cells all show a greater or less degree of fatty degeneration. This, too, then is evidence of a degenerative center spreading outward and giving rise to structures which may be misinterpreted to be true rosette formations.

In one of our cases the advancing edge of the tumor showed round or oval islands of cells the centers of many of which were paler than the periphery and resembled the pseudo-palisade structure. On higher magnification, these centers were seen to consist of degenerating cells, many of which seemed to be in incomplete and atypical mitotic division. This appearance suggests a possible origin of at least some of the pseudo-palisade formations. It would seem as though the extremely rapidly multiplying cells in the centers of these areas increase faster than their blood supply and many, therefore, succumb to anoxemia and malnutrition.

The spongioblastomas are highly vascular, but the blood vessel walls are for the most part undergoing hyalinization or some other

pathological process. Great proliferation of the adventitial cells as well as the endothelial lining is often seen. This frequently gives rise to occlusion of the lumen and probably accounts for much of the widespread necrosis. The thin-walled veins are often ruptured with resulting areas of hemorrhage and further cause for necrosis. The free red blood corpuscles in the tissues break up readily, and many of the tumor cells as well as the adventitial cells of the blood vessels are seen filled with blood pigment granules.

In many of these tumors cystic degeneration is also present. The cysts are frequently small areas but may also reach large size, although maintaining the same characteristics. They are without definite walls or lining membranes and appear to be the result of solution of tissue without repair.

The tumor cells wherever they may be seen in characteristic form lie closely packed and are in apparently indifferent relation to each other. They are stamped by a great variability in size and shape both of the nuclei and cytoplasm. The latter, with ordinary stains, often appears very scanty and ill-defined, although at times a spindle, round, or oval shape may be made out even in hæmatoxylin and eosin preparations. The nuclei may be small or large, round, oval or elongated. The amount of chromatin present may also vary tremendously, although the nuclei are usually vesicular with finely divided chromatin. Many of the cells are multinucleated with large amounts of cytoplasm, these representing true tumor giant cell forms. Many of them have, instead of multiple nuclei, a single but large and multilobulated nucleus. Mitotic figures are frequently seen.

With Cajal's gold sublimate stain many of the tumor cells show a spindle-shaped bipolar body, but very many of them have round, oval, pear-shaped unipolar forms, while still others show multipolar prolongations resembling those of adult astrocytes. There are present, moreover, even in those cases taking the gold sublimate impregnation exceptionally well, a very large number of cells which show apparently naked nuclei, seen only in shadowy outlines (Fig. 1). Their character is not yet known but their large numbers certainly indicate their important place in the structure of these tumors. Unfortunately, most of our material is too old to lend itself to investigation by the new modifications for oligodendroglia impregnation. But if we may be permitted to

judge from a single case, the cells of the "third element" are far from uncommon among the other elements comprising these tumors (Fig. 2). We have had much too inadequate experience with this phase of the problem to attempt to explain this finding, but feel, nevertheless, that it may prove to be a fruitful field for further investigation.

Although stains for tigroid bodies and nerve fibrillae sometimes disclose these structures within the tumor substance, we are unable to convince ourselves that they actually are part of the neoplasm, and feel that in all likelihood they are evidence of the remains of the invaded brain tissue. Preparations made with phosphotungstic acid hæmatoxylin, or ethyl-violet orange-G show occasional delicate fibrils taking the specific stains.

COMBINED GLIOMAS.

In their monograph on tumors of the glioma group Bailey and Cushing list five gliomas as transitional which were, therefore, excluded from the group of 254 classified gliomas. In a later paper Bailey describes two of these as a "sort of cross between a spongioblastoma multiforme and ependymoma." Of the other three, one looked "in part like a ganglioneuroma" and in another part the "structure looked like a medulloblastoma." A fourth looked in some parts like a spongioblastoma and in others like an astrocytoma. The fifth was "histologically a benign growth composed of spindle-shaped cells in which numerous neuroglial cells were differentiated" They also had seventeen gliomas which they excluded as atypical—not apparently because of several different types of cells in the same tumor, but because all the cells in each tumor failed to fall into the already existing groups.

In our relatively small series of cases five tumors occurred which would belong among Bailey's transitional gliomas. This relatively high incidence may be explained by the fact that our tumors were all obtained postmortem so that the entire brain and neoplasm were available for study in each case. This fact seems to us very important since we feel that in different areas of the same tumor the histological structure may vary quite markedly. Not only did we find, as in the transitional tumors about to be described, large areas in which the character of the growth was entirely different from the fundamental type constituting the largest part of the tumor, but in

other cases less typical spots which also showed a predominance of cells different from those making up the main mass of the growth.

These combined tumors consisted of a spongioblastoma multiforme with a large area disclosing the structure of a primitive medullo-epithelioma in one case; two cases also fundamentally spongioblastoma multiforme with areas of varying size typical of astrocytoma; another tumor in which in the midst of a spongioblastoma, an area of probable oligodendroglioma was found; and finally, an ependymoma in which typical areas of spongioblastoma multiforme were located.

This inclusion of cell types from the most primitive to the most differentiated cells of the glioma series seems to us to indicate that the spongioblastoma multiforme is a tumor giving rise—more than any of the other tumors of the glioma group—to cells of various developmental stages, a fact which we believe may account for the great variation in the cells regarded as typical of the uncomplicated spongioblastoma multiforme. It is for this reason also that we would regard the name *glioblastoma multiforme* as more appropriate for this type of tumor.

The histories and salient features of the postmortem findings in two cases with combined gliomas are detailed in the following pages.

CASE I.—No. 361. *Combined gliomatous tumor. Spongioblastoma multiforme and medullo-epithelioma, left temporal lobe. Male, 54, symptoms of depression and irritability for one year; headache and right hemiplegia 2 months before admission. Death four months afterwards.*

The brain from this case was sent to the New York Psychiatric Institute by the Toronto General Hospital.

History and Physical Findings.—The patient was an accountant of 54, who for about a year before admission was observed by his wife to be irritable, depressed and at times "muddled." He began to complain of being treated unfairly at the office, of being "cut" on the street by former acquaintances, and badly treated by his family.

For two months before admission to the hospital he began to show weakness of the right side of the body and face, and complained of headaches in the left temple. He had had several attacks of dizziness and nausea during this period, and his mental symptoms had become aggravated. He did not recognize his friends at times, and at others misnamed common objects, calling a knife a boot, for example. His speech became indistinct and slow, and about the time of admission to the hospital his mental confusion had reached the character of a mild delirium.

During his more lucid moments he answered questions more or less intelligently, but frequently mispronounced the names of people and familiar objects. Sometimes he used the wrong words as years for days, and misnamed test objects, *e. g.*, he called a pen-knife a lawyer, etc.

There was present from the first examination a right-sided spastic paresis including the face, but no sensory changes on that side. There was a mild degree of choking of the disc greater on the left than right side, but no visual field disturbance.

Operation.—The patient was believed to have a tumor of the left frontal region and an osteoplastic operation was accordingly done in two stages two weeks after admission, without, however, disclosing any lesion. Owing to the signs of increased tension a decompression was made.

Course.—Immediately following operation the aphasia and right-sided paralysis both became complete. The area of decompression on numerous occasions bulged very dangerously, but lumbar puncture each time relieved the tension, as well as restored consciousness (!).

When conscious the patient did not appear to be suffering. The choking of the discs did not increase after the decompression was made.

Four and one-half months after the operation his temperature began to rise and within 24 hours it had reached 108.4 (F.) when he expired.

Brain.—The brain is very large, weighing 1800 grams, and shows generalized flattening of the convolutions, especially over the parieto-occipital convexities. The left central convolutions, the anterior part of the supramarginal gyrus, and the basal parts of the middle and inferior frontal convolutions are torn, swollen and pale, evidently the area which had bulged through the operative defect (Fig. 3a). In the middle of the left anterior central convolution is an area about 2 cm. in diameter of very thinned-out cortex overlying the lateral ventricle.

The left temporal lobe is not included in the bulging above described but is tremendously swollen by a large, firm, pyriform tumor occupying its anterior two-thirds. A transverse section of the brain at the level of the greatest bulging in the tumor through the anterior third of the left temporal lobe reveals the presence of a non-encapsulated, infiltrating new growth occupying chiefly the marrow of the temporal lobe and invading the cortex of T_1 , T_2 and the hippocampal gyri. The temporal horn of the lateral ventricle is patulous, but the surrounding marrow is apparently included in the tumor growth (Fig. 4). The center of the tumor mass is less firm than its periphery and has a yellowish gray appearance, while the periphery is grayish with occasional hemorrhagic spots scattered through it. The sub-cortical extent of the tumor has been superficially indicated by a projection dotted line drawing upon the cortex (Fig. 3).

On the basal aspect of the brain all the mid-line structures are crowded over toward the right by the expanding growth.

Microscopic Findings.—The tumor is to a considerable extent necrotic, showing large homogeneous or granular areas without cellular elements (cyst formation). The greater part of the remaining tumor tissue consists of closely packed cells with very little protoplasm. Numerous giant cells are

present, however, with large homogeneous cell bodies. The nuclei show great variation in size and shape, varying from small, round ones about the size of red blood cells to large round, oval or kidney-shaped ones. Many of the cells are in mitotic division (Fig. 5). Numerous areas exist where necrotic centers are surrounded by closely packed nuclei giving a pseudo-acinous appearance to the structure (Fig. 6). The tumor is very vascular, but many of the vascular channels are partly occluded by hyalinization of their walls and proliferation of the endothelium as well as adventitial cells. Fat preparations show fat inclusions in the majority of the cells.

With Cajal's gold sublimate stain many of the cells show bipolar as well as unipolar forms. A moderate number of astrocytes is also seen. By Bailey's ethyl-violet orange-G stain delicate neuroglial fibrillæ may be demonstrated.

One area of the tumor, almost completely confined to a small nodule 1.5 x 1 cm. although not everywhere sharply demarcated from the rest of the growth, shows an entirely different structure. It is evident with low power that there is definite architecture to this area (Fig. 7). The tumor cells tend to grow in long bands which are invaginated and evaginated as if trying to increase in length within a limited space. The bands show fairly definite limiting membranes here and there. Between the bands of cells are blood sinuses surrounded by dense connective tissue. Some of the cords of cells are relatively wide, appearing, in fact, like rich cellular islands. In the centers of these many cells are seen undergoing rapid mitosis as well as degenerative changes. Where necrosis had evidently taken place completely, clear spaces exist surrounded by nuclei giving a pseudo-rosette appearance to the tissue. The cells themselves show uniformly large oval nuclei. The cytoplasm seems limited in amount owing to the great numbers of nuclei and the cell boundaries are not usually clearly definable. Mitotic figures are extremely numerous. The characteristic feature of the growth is best seen where the bands of cells are so arranged as to form canals. Here one sees a very distinct membranous formation just outside the inner cell margins. This margin bears neither cilia nor blepharoplasts (Fig. 8).

A neighboring area to the nodule just described and about twice its size, although characteristically spongioblastoma multiforme, shows nevertheless distinct evidence of transformation from a condition similar to that in the nodule itself. Bands of cells around the periphery of the larger area resemble the bands in the smaller one. The larger nodule shows much more necrosis and less architectural arrangement than the smaller one, but the pseudo-palisade formations here still give evidence of extremely active mitosis in their centers, although the necrosis is much more advanced.

There can be very little doubt that the tumor just described consists almost entirely of elements recognized as characteristic of spongioblastoma multiforme. In proof whereof we have the great variation in the tumor cells, giant cells, mitotic figures, pseudo-palisade formation, necrotic areas, degenerative and proliferative

disease of the blood vessel walls and finally the bipolar and unipolar forms of the cells brought out by the Cajal gold sublimate impregnation.

Indeed it is no more to be doubted that in a limited portion of the growth the picture is that seen in those rare tumors arising from the retina or the undifferentiated roof and floor plates of the brain and believed to consist of cells belonging to the primitive medullary epithelium.

In another spongioblastoma multiforme we found a small area at the periphery of the tumor which resembles the more primitive structure of the growth just described, in many ways (Fig. 9). The cells here are more or less alveolar in arrangement and these alveoli contain at their centers very many bizarre types of mitotic division, obviously undergoing degeneration, thus giving rise to what might be looked upon as the earliest stages of the pseudorosette formation.

The next case is also illustrative of a combined glioma, showing a combination of spongioblastoma multiforme and astrocytoma. This is probably a quite common occurrence since in nearly all spongioblastoma multiforme occasional astrocytes are seen. This case is presented, however, because of the large area in the spongioblastoma multiforme occupied by the astrocytoma.

CASE II.—No. 1436. Large tumor of left cerebral hemisphere; combined glioma. Spongioblastoma multiforme and astrocytoma protoplasmica. Male, 40, symptoms for ten months before death. Headache, vomiting, diminished vision. Operation: Aspiration of gliomatous cyst; X-ray therapy. Aphasia. Right hemiplegia. Death.

History.—During Easter, 1926, the patient became ill, complaining of headache, vomiting and diminished vision. He was treated at a hospital for three weeks, then he left against advice and returned to work. Two weeks later the symptoms returned and he went to another hospital where a diagnosis of a brain tumor was made.

June 3, 1926, a left craniotomy was done, at which a gliomatous cyst was aspirated and its walls treated with Zenker's solution. Following operation he received a series of X-ray treatments.

At the time of his discharge, after two months in the hospital, he was blind, aphasic, and incontinent. He became increasingly difficult to handle, was frequently crying and muttering as if reacting to auditory hallucinations.

In this condition he was admitted November 20, 1926, to the Manhattan State Hospital, New York. Here he was found very emotional, occasionally speaking a few words, constantly asking for water. He assumed strange postures, covering his face with sheets and blankets.

Physical Examination.—He showed a large left cranial hernia, was aphasic, but could speak incoherently and irrelevantly a fair number of words. He was noisy and restless, resisting all attempts to examine him. He had a right hemiplegia and was obviously blind.

Course.—He became gradually weaker and died February 19, 1927, approximately ten months after the onset of symptoms.

Brain.—A large herniation corresponding to the bony defect is present on the left side. The entire left temporal, lower part of the parietal and anterior part of the left occipital lobes are involved in a huge neoplasm. This growth takes in the cortex in many places and is so extensive as to include the corpus striatum, internal capsule and thalamus. The left lateral ventricle, except for the frontal horn, is entirely obliterated. The right lateral ventricle is considerably dilated (Fig. 10).

There is much destruction of the tumor by colloid-filled cysts. Much of what remains is solid, hard, obviously cicatricial. No calcification, however, is present. One small area in the tumor (Fig. 10a) is softer than the rest and extremely elastic. Its color resembles that of the normal formalized brain, but in consistency is distinctly spongier.

Microscopic Appearance.—Large areas of this tumor are represented by very dense connective tissue, and cystic degeneration. The tumor cells, wherever present, show a great multiplicity in size and shape, both of the cytoplasm and nuclei. Numerous giant cells are present as well as mitotic figures. The adventitial cells of the numerous blood sinuses show considerable proliferative activity. Pseudo-palisade formations with necrotic areas exist here and there (Fig. 11). Gold and silver impregnations show the bipolar and unipolar character of many of the tumor cells.

Sections cut from the area marked "a" (Fig. 12) present an altogether different picture. The tissue is supplied by small delicate-walled capillaries. It consists of sparsely scattered cells, of moderately large size with large oval, vesicular nuclei and generous cytoplasm which ends in prolongments that may be seen losing themselves in the delicate feltwork which makes up the intercellular tissues. With phosphotungstic acid hæmatoxylin these cells may be identified as astrocytes, and the ethyl-violet orange-G stain brings out the specific character of the intercellular neuroglial fibrillæ. Gold sublimate stains show these cells to be astrocytes of the protoplasmic type.

The factor of surgical intervention introduced into the life history of the tumor in this case complicates the picture. The decompression which conceivably may have upset the equilibrium of growth of the tumor cells, the Zenker's fluid introduced into the cyst, and finally the X-ray therapy may each have served to affect the final appearance of the growth as seen postmortem. Cushing and Bailey have observed, for example, that tumors which prove at the first operation to be astrocytomas may recur rapidly after the operation and show characteristics of spongioblastoma multiforme at a second surgical session. Tooth,* before them, had made

similar observations. That this may have been the case here is quite possible, since so much of the tumor consists of connective tissue and cystic degeneration that too little remains to ascertain which is original tumor and which the admixture. However, it may have come about, the picture presented is that of a combined gliomatous tumor consisting partly of spongioblastoma multiforme and partly of astrocytoma protoplasmica.

One other spongioblastoma multiforme which we did not include among the mixed gliomas because no such definite area existed as in the last case shows, nevertheless, numerous spots where the predominating cells are astrocytes.

In still another quite typical spongioblastoma multiforme a moderate-sized area exists in which the character of the growth changes completely from the usual multiform type of cells (Fig. 13) to cells of uniformly small size with small round richly chromatin-filled nuclei resembling in every respect the *gliome a petite cellule* of Roussy, Lhermitte and Cornil,⁴ or oligodendroglioma of Bailey and Cushing (Fig. 14). Only specific impregnation for oligodendroglia will serve to determine the exact character of such cells as these. We believe, however, that when this method shall be regularly applied to fresh tumor tissue properly fixed, the oligodendroglia will prove to be an important constituent in many tumors where they are at present not suspected to exist. Small modifications in technique may have far-reaching consequences. When Bailey and Cushing only a few years ago wrote that "there is no evidence whatever that any of the other varieties of gliomas, such as the common spongioblastoma multiforme, arise from the oligodendroglia," a satisfactory impregnation of the oligodendroglia was a mere matter of chance, whereas, today, good preparations may be obtained as a rule when fresh tissue is available.

The interpretation of these combined tumors of the glioma series is a very difficult one. If dedifferentiation is responsible for the combination of spongioblastoma multiforme and astrocytoma protoplasmica in the same growth, it accounts for only one or two of our cases. On the other hand, we may assume that Cohnheim's cell rest theory is applicable to the case showing medullary epithelium in places. The lack of function of these embryonic cells (Adami¹) or some diminution of the resistance of surround-

ing tissues (Ribbert²⁸) leads to their neoplastic activity. Once new growth is started these cells may not only reproduce their own type but also other cells at various stages of development, as Hart conjectures. It will be seen later on that a typical ependymoma obviously arising from the lining epithelium of the ventricles shows among the characteristic blepharoplast-bearing cells bipolar spongioblasts and even astrocytes, numerous giant cells, active mitosis—in short, typical areas of spongioblastoma multiforme.

ASTROCYTOMA.

Only six tumors consisting for the most part of cells resembling astrocytes were found among our 36 tumors of the glioma group. This is astonishingly few compared to the number of spongioblastoma multiforme (25). In Cushing's series, for example, figures quoted up to January 1, 1927, showed 136 astrocytoma and only 117 spongioblastoma multiforme. Above we have tried to evaluate some of the factors which lead to commitment of a patient with a brain tumor to a state hospital, and these factors may account for the difference in the relative numbers of various histological types of gliomas found among such patients as compared with the figures from a neurosurgical clinic.

The clinical character of these tumors shows a strikingly lesser degree of malignancy than the spongioblastoma multiforme. Among five out of the six cases in which the history was reliable the average duration of symptoms referable to the neoplasm before death was three and one-half years. Here the advantage of surgical treatment is even more evident when it is recalled that in Cushing's operated cases the average duration (latest figures from Bailey) is 76 + months or nearly six and one-half years in these cases.

The six tumors in our cases were all located in silent areas in the cerebral hemispheres. In Cushing's series, however, 15 out of 136 astrocytomas were found in the cerebellum. He notes the fact that the average age of the patients with cerebellar astrocytomas was only 13 years, whereas those with these tumors in the cerebrum entered the hospital at an average age of 29 years. This fact he believes to be due to the quicker development of pressure symptoms in cases of tumors located in the cerebellum, so that these come to the surgeon much sooner. On the strength of this suppo-

sition the tumors in the cerebral locations may have been growing for many more years than would appear from the history. The same reasoning applied to our cases may explain the fact of their admission to the hospital at an average age of 40 years, since in them the tumor was not only confined to the cerebrum, but in each case to such parts of the cerebrum which do not usually give rise to localizing signs when involved by tumor.

Morphologically these tumors are infiltrating and also quite prone to degeneration. Cyst formation is quite common although in our six cases only one showed cysts of any considerable size (Fig. 15). The tumor may grossly present a peculiar grayish avascular appearance resembling closely the color of gray cerebral substance. Its consistency, however, is soft and elastic when compared with surrounding brain tissue (Fig. 16).

Microscopic preparations even by ordinary stains are quite characteristic of these tumors. The cells are far less numerous than in spongioblastoma multiforme. The nuclei, scattered evenly over the preparation, are quite large in size and vesicular. The cytoplasm is considerable in amount and ends in long processes which lose themselves in the meshwork of intercellular tissue consisting to a large extent of these intertwining prolongations from neighboring cells. Mitotic figures are rarely seen, but occasionally incomplete amitotic division is demonstrable. The blood vessels are for the most part delicate, thin-walled capillaries, although occasionally a large, maybe thrombosed, vessel is found, especially in the midst of a necrotic area. Connective tissue is confined to the walls of these vessels.

The most characteristic appearance presented by the astrocytoma is obtained by Cajal's gold sublimate preparation (Fig. 17). Here the cytoplasm and its prolongations are impregnated and show the astrocytic character of the cells. These tumor astrocytes differ from normal ones in the coarseness of their prolongations and their greater size. Occasionally astroblasts showing one heavy sucker-foot upon a vessel wall, and only indications of other prolongments are seen. Here and there a bipolar spongioblast is demonstrable.

Although he says that transitions between protoplasmic and fibrillary astrocytomas are common, Bailey makes a subdivision between these two types depending upon the variety of cells in

predominance. Apparently he has had some examples of pure types, for he describes the protoplasmic astrocytes as tumors in which no neuroglial fibrillæ can be demonstrated. In the six astrocytomas among our gliomas none occurred in which no neuroglial fibrillæ were present. Five of them, however, showed a predominance of protoplasmic astrocytes, while the sixth was made up chiefly of fibrillary cells.

This latter tumor is a large growth in the left frontal lobe. It, too, shows considerable degeneration but no actual cyst formation. Microscopically rather small, dark, round nuclei are sparsely scattered in a feltwork of fibrillæ which take the specific stain for neuroglia fibrillæ (Fig. 18). But even in this tumor there is a generous admixture of protoplasmic astrocytes, and here and there in the gold sublimate preparations spongioblasts are seen.

Nerve cells and neurofibrillæ are present in small numbers throughout these tumors, but the slow growth and infiltrating character undoubtedly account for the presence of nervous elements in the tumor substance as remains of brain tissue which has accommodated itself to the presence of the neoplasm and has continued to function, or at least to survive.

The source of the protoplasmic astrocytomas has in all probability been properly taken by Bailey and Cushing to be the adult protoplasmic astrocyte which, as we know, can divide simply or even mitotically under an impulse sufficiently provocative. It is also known, however, that protoplasmic neuroglia may change into the fibrillary type. We therefore disagree with these authors who believe that "the fibrillary astrocytoma is perhaps not a blastoma at all but of the nature of heterotopia," and we feel that the source of both varieties of astrocytomas is the same.

The presence of spongioblasts in these tumors may be explained by a process of dedifferentiation. That some evidence exists to prove that this takes place has already been stated above in quoting the experience of Dr. Cushing. He found that some tumors, clinically and morphologically astrocytomas, regrow rapidly after an incomplete surgical removal and prove, at a second operation, to have changed their character to spongioblastoma multiforme.

SPONGIOBLASTOMA UNIPOLARE.

The following case is an example of a rare type of tumor called spongioblastoma unipolare. It is clinically fairly benign, and morphologically is believed to arise from cells more advanced in their differentiation toward the adult state than the spongioblastoma multiforme.

The primitive spongioblasts in the embryo stretch between the external and internal limiting membranes, the nuclei lying somewhere between give rise to a bipolar aspect of the cells. Out of some of these the bipolar spongioblasts arise by simple division. The next step is an atrophy of the internal process which gives rise to Castro's "dislocated epithelial corpuscle" or the unipolar spongioblasts. Among Cushing's 378 classified gliomas (Jan. 1, 1927) only twelve tumors of this type were present.

CASE III.—No. 133. Male. 47, tumor symptoms for 2½ years before death. Jacksonian epilepsy and left hemiplegia. Tumor under right precentral convolution. Spongioblastoma unipolare. Small meningioma in addition.

History.—The patient, a man aged 47, was admitted to the Rochester State Hospital, New York, July 8, 1905. He was a lumber inspector by occupation. His illness began two years before with weakness in both his legs and severe frontal headaches. Two months previous to admission he lost the use of his left thumb and forefinger and had a feeling of numbness in these members. Three weeks before entry he had a spell of unconsciousness and rigidity lasting about an hour. Two days later he returned to work and continued there for nine days when he had another similar attack. After this he had frequently repeated convulsions which his family thought were limited to the left side. He soon became wildly delirious and actively hallucinating, in which condition he entered the hospital.

Physical Examination.—The cranial nerves were essentially negative. No note was made about the eyegrounds. There was left-sided weakness, slight rigidity, left Babinski was positive. Repeated Jacksonian convulsions took place beginning in the left thumb and forefinger without associated loss of consciousness.

Course.—August 15, 1925, an exploratory right-sided craniotomy was done, but nothing was found. Following operation the left paralysis became complete and the convulsions ceased. He continued delirious, disoriented and hallucinatory.

The patient gradually became weaker. October 18, 1905, convulsions reappeared but affected the right (non-paralyzed) side. November 20, 1905, he died.

Brain.—The brain is large with bulging and surface flattening of the right central convolutions and adjacent parts, also marked bulging of the right gyrus fornicatus, gyrus ambiens and semilunaris. The corpora mammillaria are displaced to the left.

On section a spherical tumor 3 cm. in diameter is disclosed lying just under the right anterior central convolution. It is soft, ragged, dark reddish, and in places, yellowish in color. Much of it is obviously necrotic showing cystic as well as solid areas of degeneration and hemorrhagic infiltrations (Fig. 19).

It is of interest, although without bearing on the problem in hand, that at the tip of the right frontal pole, adherent to the junction of the dura and falx (the wall of the superior longitudinal sinus) is an additional small extra-cerebral tumor, about 8 mm. in diameter which on section proves to be a typical meningioma (Fig. 20).

Microscopic Appearance.—The appearance of our example of spongioblastoma unipolare is absolutely unique and cannot be mistaken. The main part of the tumor consists of bands of cells arranged in rows with the nuclei turned toward the outside and the unipolar processes directed toward the center which results in a great tangle of fibres. This is appreciable even with ordinary preparations but is best brought out by phosphotungstic acid hæmatoxylin (Fig. 21). In a hæmatoxylin-eosin preparation, especially when understained with hæmatoxylin, these areas resemble very closely the pseudo-palisade formations which appear in spongioblastoma multiforme and which are, as adequately shown by Bailey and Cushing, simply a result of a degenerative process. In the latter, however, the cells surrounding the clear area are in various stages of degeneration—most of them showing a marked degree of pyknosis. Finally, fat preparations show a large accumulation of fat droplets in the centers of the pseudo-palisade formations which does not occur in the characteristic formations of the spongioblastoma unipolare. The cell processes of the unipolar spongioblasts stain only faintly with phosphotungstic acid hæmatoxylin as well as ordinary hæmatoxylin when the sections are overstained. By the Cajal gold sublimate method, however, they may be impregnated, especially when isolated in the loosely arranged tissue between the bands of closely packed cells. In our case many of the cells in these "interacinous" areas show marked evidence of degeneration. In some places all the cells have disappeared and nothing but homogeneous colloid substance remain (Fig. 22).

It follows that while in the pseudo-palisade formation the degeneration takes place in the central portion of the structure, in the true palisade, the central portion is generally free from degeneration. Conversely, the degeneration takes place around the palisade and in that, the picture differs markedly from the pseudo-palisade structure encountered in the spongioblastoma multiforme.

It is in these in-between spaces where numerous bipolar spongioblasts and a moderate number of astrocytes are seen. Although this example represents a tumor composed as uniformly of one type of cell as any of the other gliomas in our series, we cannot fail, nevertheless, to be impressed by the admixture in generous quantities of other immature elements of glial tissue.

Mitotic figures are rarely encountered, but incomplete amitotic division is quite frequently seen. This, like most other gliomas, shows large areas of

degeneration, cyst formation, hemorrhage, etc. The blood supply is not rich. The thin-walled sinuses show practically no tendency to proliferation of their adventitial cells.

This tumor shows an unusually wide area of glial reaction in the brain zone surrounding it. In some places this zone is half a centimeter wide and if it were not for the retention of ganglion cells and neurofibrillæ, as demonstrated by special stains, could easily be mistaken for actual astrocytoma formations.

The literature is almost completely lacking in reports of similar tumors. Aside from the twelve cases from Cushing's clinic only two other reports, those of Josephy³⁹ and MacPherson,⁴⁰ suggest this type of growth in Bailey's judgment. While we cannot deny this likelihood, it must, nevertheless, be said that neither of these growths—named central neuromata by Josephy—showed the characteristic arrangement of the unipolar cells which was so marked a feature in our case.

EPENDYMOMA.

Tumors consisting of cells arising from the ependyma are very rare. The incomparable collection of Cushing up to January 1, 1927, contained only sixteen examples and these are mostly fragmented specimens removed at operation. Bailey in his thorough search of the literature has been unable to find more than nine authentic cases. We are, therefore, fortunate in being able to present three cases, the entire tumors of which are at our disposal for study. The first case is of additional interest owing to the location of the tumor, and the history will be given in some detail.

CASE IV.—No. 196. Ependymoma arising from the floor of the third ventricle. Cyst of left corpus striatum. Female, 45, Somnolence, obesity, polyphagia, polyuria, tremor of extremities and tongue. Right hemiparesis. Death one and one-half years after admission.

History.—The patient was a woman of 54 who was committed to the Middletown, N. Y., State Hospital on March 6, 1905. For years she had been suffering from neuralgia, for the relief of which she had begun to use opium about six years before admission. In 1902 her husband deserted her because she had become irritable, restless, careless about her house and person. She was also passing her menopause at this time, had severe fits of weeping, especially when left alone, and at one time attempted to take an overdose of laudanum. She became gradually worse, grew suspicious of her children and for a time slept poorly.

In spite of her disinterestedness and neglect of her person she ate ravenously and became very fat. During the year, but more markedly the six

months, prior to entrance into the hospital, she slept a great deal, and was difficult to arouse.

Physical Examination.—The striking thing about this patient was her *inordinate appetite associated with marked obesity*. The motor, sensory and reflex functions were quite normal.

Mental Status.—Her emotional tone was changeable and superficial. She was easily distracted. Orientation was normal, she presented no delusional changes. Her judgment in most matters was quite good, but she showed no real insight into her condition. Memory was normal for remote, but defective for recent, events.

Course: March 8, 1905.—She complains of headache and backache, of her limbs being stiff and tired; she is nevertheless very jolly, laughing easily and very loudly.

March 31, 1905.—She had been sleeping very well during the night and in addition sleeping a good deal while sitting in a chair during the day. Only last night she was very restless, *drinking water and voiding urine at very frequent intervals*.

April, 1905.—The patient has *definite polyuria* and a ravenous appetite. She is loquacious and good natured but complains a good deal about her back.

May, June, July.—Her condition is essentially unchanged, except that she has to be kept in bed on account of untidy habits.

August 21, 1905.—The patient vomited and complained of severe headache today.

August 22, 1905.—This morning she was very tremulous when trying to walk and eventually fell to the floor. She was put to bed where she remained in a state of lethargy complaining in a thick voice of pain in the head. She did not ask for breakfast. The right pupil does not react to light.

September 23, 1905.—Her memory is deteriorating rapidly.

January 25, 1906.—Her memory is very poor, she sleeps and eats a great deal.

March 9, 1906.—She is drowsier than ever. Today she vomited before breakfast. Afterwards she walked to the other end of the ward and fell asleep on a chair.

March 18, 1906.—Her right hand has become so tremulous that she had to use the left one to feed herself.

May 9, 1906.—She staggers while walking; there is a marked tremor of the tongue, fingers and corners of the mouth.

July 23, 1906.—There has been a progressive mental deterioration. She is quite disoriented and does not recognize anyone. Gradually a weakness of the right side has developed. There is also a left upper lid drop.

September 1, 1906.—Her condition has continued about the same since the last note. Her appetite has remained very good. Otherwise she has remained stuporous, drooling, demented. Today she began by vomiting her breakfast, then continued vomiting repeatedly until this afternoon when she went into coma and died at 7.30 p. m.

Autopsy.—A short, extremely obese elderly woman. The organs generally showed very little of note. The pituitary body was apparently intact.

Brain.—The brain is of medium size. It shows marked convolitional flattening especially over the superior and frontal convexities. Viewed from the base, there is a bulging of the floor of the third ventricle which feels hard and resistant owing to an underlying tumor. The optic tracts, the chiasm and tuber cinerium are all involved in the growth (Fig. 23). The left optic nerve is several times larger than normal. A sagittal section of the brain (Fig. 24) shows the tumor to be of globoid shape approximately 35 mm. in diameter. It extends upward to the corpus callosum which is slightly flattened and bulges laterally, practically obliterating the ventricle by displacing the normal tissues before it. On the mesial surface, except the basal portion including the floor of the ventricle which is pale, the tumor presents a hemorrhagic appearance with numerous and variously sized lacunæ containing a colloid-like material.

Horizontal sections through both frontal poles and at right angles to the brain stem show nothing abnormal in a section immediately above the tumor. The next section, 2 cm. deeper, passing through the middle of the tumor (Fig. 25) shows a large cyst located in the space normally occupied by the left globus pallidus and putamen. The internal capsule and thalamus on the same side are fairly intact, but edematous.

Microscopic Appearance.—The records contain a very fine description of the histology of this tumor written by Dr. C. I. Lambert, from which the following is partly drawn. Figs. 26 and 27 are adapted from sketches by him to show the relation of the tumor to the adjacent brain structures, and the relation of these structures to each other in the normal brain.

The tumor appears to have had its origin from the ependyma of the fore-brain ventricle most probably in the region of the tuber cinerium, optic recess, or the lamina terminalis. With its origin in the antero-inferior portion of the ventricle, its growth would be upward in the line of least resistance compressing and displacing the softer contiguous structures, the optic nerves, the post-olfactory substance and the columns of the fornix somewhat laterally and the septum lucidum and the psalterium of the fornix superiorly as suggested in the drawing. While the tumor does not possess a true capsule, still by its manner of growth, essentially interstitial or central, there has been produced out of the neuroglia and vascular tissue surrounding the growth an artificial capsule, the fibres of which have been rendered mostly parallel by the pressure of the rotating and encroaching tumor growth. This has been added to by the inflammatory production of a thin lamina of finely fibrillated connective tissue seen at occasional intervals around the border between the tumor proper and its artificial capsule.

The characteristic appearance of the tumor is seen in Fig. 28. In such places the blood vessels, alone or several in a group, appear at the center of the rosette-like formation. Near this vascular "core" the cells are sometimes columnar in shape, but passing outward they lose their radial arrangement and form a meshwork of cells of irregular shape and arrangement. Mitotic figures are rarely seen among the tumor cells.

The tumor blood vessels are very numerous and tortuous and give rise to the whorls and rosette-like appearances. Many of these blood vessels show hyaline degeneration of their walls, and are surrounded by an amorphous myxomatous material.

In the center of the tumor mass is a large irregular lake of colloidal material, perhaps in part secretory but very largely degenerative in origin; encircling this latter area is an irregular zone of congestion and dilated blood vessels and sinuses filled with corpuscles, fibrin and coagulum. Numerous smaller colloid filled spaces are alternately intermingled with these vessels. Round about the tumor and in the normal tissue and about a few of the blood vessels is seen an infiltrate of lymphoid and plasma cells.

In many of the vessels numerous polynuclears are seen. On the ventricular surface facing the tumor the ependyma is seen to be thrown into rough granulations, and the underlying neuroglia shows marked reaction. Here also are seen numerous chains of streptococci. In the nervous tissue around the tumor numerous astrocytes are seen and the vessel sheaths are considerably infiltrated with lymphoid cells, a few plasma cells are also present. The several basal structures, corpora mammillaria, tuber cinerium and optic chiasm are swollen and oedematous. Several areas of degeneration are seen in the latter structures.

The long columnar, cuboidal and polygonal cells making up the tumor contain in their cytoplasm small dot or rod shaped bodies two to six or eight in number surrounded by a light halo. They may best be demonstrated in Zenker-fixed material or refixed formalin material in Zenker's solution as described elsewhere¹⁹ and stained with ethyl-violet orange-G or phosphotungstic acid hæmatoxylin (Fig. 29). Their nature is obviously that of blepharoplasts characteristic of ependymal tumors as described by Mallory and Bailey.

The size, shape and arrangement of the tumor cells and the presence within them of blepharoplasts as well as the origin of the growth from the walls of the third ventricle—most probably the lamina terminalis—leaves no doubt as to the type of the tumor in this case.

Clinically this patient presented an important group of symptoms which may have some physiologic value. Somnolence, obesity, polyuria, are variously ascribed by adherents of different schools to a disturbance of the pituitary body, or the centers involved by this tumor. The countless number of cases with adiposo-genital dystrophy associated with primary pituitary disturbances lend support to the opinion that these symptoms are hypophyseal in origin. P. E. Smith in some beautiful experiments on young rats has been able to show that pathological obesity results from a disturbance of the centers of the tuber cinerium without injury to the pituitary body. Camus and Roussy¹⁸ and Bailey and Bremer²⁰ have shown that puncture of the tuber cinerium in dogs results in polyuria.

Hosts of writers may be cited to support either contention. Still others as Adie,³ for example, who are impressed by the anatomical intimacy of these structures believe that the symptoms may arise from an interruption of the interactivity of the pituitary and *'tween brain*. We are aware that the pituitary body is joined closely to the nervous system—the anterior part by sympathetic fibres from the carotid artery, the posterior lobe by a bundle of fibres—the tractus supraopticus—arising in the nucleus supraopticus (hypophyseus) and reaching it by way of the infundibulum, and it is not unlikely that a lesion in the nervous centers results in an interference with the function of the hypophysis and vice versa.

The cystic degeneration of the left corpus striatum and pallidum may be assumed to account for the right-sided tremor.

The following case, strictly speaking, belongs among the transitional gliomatous tumors. It is, however, largely composed of ependymal cells and is therefore described under the ependymomas. The transitional character of the growth comes about through the presence in it of areas typical of spongioblastoma multiforme.

CASE V.—No. 821. Ependymoma of the right temporal lobe. Some areas of spongioblastoma multiforme. Female, 67, vertigo and auditory hallucinations for one year, confusion two months, left hemiplegia three weeks before death.

History.—The patient, a woman of about 67, entered for the first time, the St. Lawrence State Hospital, N. Y., voluntarily on January 10, 1913. She complained of feeling unusually nervous for two years. During the past year she had had occasional attacks of vertigo. Just prior to admission she experienced auditory hallucinations—music, as well as ticking, as of a watch—always on the left side.

In the hospital she cooperated readily and promptly, was clearly oriented, lucid and coherent in her speech. Her memory was excellent for both remote and recent events, except for one particular, she was unable to give any information regarding a slight abrasion on her nose and forehead which were covered with particles of sand. A few days prior to admission while alone in her kitchen, cleaning the table with sand, she had evidently fallen and bruised herself against the table top, although she had no recollection of this fall.

Physically she seemed in very good condition, cranial nerves, sensory and motor function and reflexes were all carefully tested and found normal.

She was discharged February 17, 1913. Diagnosis: not insane.

Interval History.—She lived alone after discharge and her status was not known until a month before her second admission on September 22, 1913. During this month she was described as acting queerly—wandering about the streets improperly dressed. She imagined her son was coming to visit her

and went to the station several times daily to meet him. On one occasion she fed candy to all the horses on the street. She became untidy and disheveled.

Second Admission.—She was committed to the State Hospital September 22, 1913. During the first night she was irritable and restless, getting out of bed and remaking it several times. She went to the bathroom and turned on the water, upset a screen, put on another patient's clothing. Mentally, she was fairly well oriented and her memory fairly good. She denied all hallucinations. Unless interrupted by questions she talked incessantly, repeating her answers as if she had forgotten that she had already replied.

The physical examination was essentially negative except that she dragged her left foot when walking. Blood pressure was 200 mm. Hg.

Course.—There was no change until October 11, 1913, when she was kept in bed because of dizziness. She could not lift her left lower extremity, had difficulty in talking and swallowing.

October 22, 1913.—She was found semi-stuporous. There was a pronounced Babinski on the left. The right arm and hand were spastic. The tongue deviated toward the left; the face was drawn slightly to the right; the left pupil was larger than the right.

November 1, 1913.—She became comatose and died.

Brain.—During removal of the brain, a cyst of the right temporal lobe containing about one ounce of straw-colored fluid under considerable tension was ruptured.

The formalin-preserved brain shows very few signs of increased pressure except in the right temporal lobe. Here the polar convolutions are widened and their surface discolored by the underlying growth which has in several places reached the surface. On sagittal sections through the right temporal lobe, a small infiltrating tumor is found confined almost entirely to the pole, and involving the floor of the temporal horn of the ventricle. It is yellowish in color and largely honeycombed by cysts filled with hemorrhagic and non-hemorrhagic coagulated material (Fig. 30).

Microscopic Appearance.—The tumor shows large cyst-like areas filled with coagulated protein material, frequently admixed with blood. There are, in addition, other areas of necrosis surrounding blood vessels, the lumina of which have been occluded by hyalinization or thrombosis. The cells of the tumor are for the most part polygonal, large, with generous protoplasm and large, pale round or oval nuclei. Some of the cells are cylindrical and arranged radially around the blood vessels in the form of pseudo-rosettes (Figs. 31 and 32). With the phosphotungstic acid hæmatoxylin stain, cellular prolongations as seen in the less differentiated type of ependymal tumors although present, are uncommon. Only rare mitotic figures are seen in the characteristic portions of the neoplasm. In most cells typical blepharoplasts may be demonstrated with the Mallory stain or with ethyl-violet orange-G. These appear in this case as small dots or rods within the cytoplasm surrounded by a clear halo.

In some areas the tumor has a quite different histological picture. It is formed by cells which show great variability in the size, shape and appearance

of their nuclei. Mitotic figures are quite frequently seen and giant cells are very numerous (Fig. 33). Cajal's gold sublimate preparations show frequent bipolar spongioblasts and an occasional astrocyte as well. The whole picture is one of spongioblastoma multiforme.

The possible significance of finding other types of cells in this tumor has already been discussed above. Practically, the important thing is the fact that, had we been limited to an examination of sections from the part of this growth which presents the picture of spongioblastoma multiforme alone, we would certainly have made the wrong histological diagnoses. It seems conceivable to us that anyone making diagnosis based on an examination of fragments removed at operation may occasionally run into such an error. This may possibly account for discrepancies existing between the clinical course and the histological picture in individual cases.

EPENDYMOBLASTOMA.

The next case is also a typical ependymoma but consists largely of less differentiated cells corresponding to Bailey and Cushing's *ependymoblastomas*. It arose, in all probability, from the ependymal lining of the central canal of the upper cervical cord. The tumor symptoms blended so with his psychosis that they were at first not properly interpreted.

CASE VI.—No. 74. Intramedullary tumor of upper cervical cord. Ependymoblastoma arising from ependymal lining of central canal. Terminal meningitis. Male, long standing psychosis, began to show signs of upper cervical cord compression at 50. Death after four years.

History.—This patient, who entered the Middletown, N. Y., State Hospital at the age of 37, was an inmate there over a period of seventeen years. He was paranoid and moody throughout, so that when he refused to work in 1900, four years before his death, giving as an excuse a loss of power in his hands, this was not considered organically significant until it persisted for some months. As time went on he began to complain of prickly sensations in the throat, cramps in his left arm, sharp cramp-like pains in the thighs and legs, especially on the left side. Two years after onset of these symptoms the left arm was paralyzed and contractures had set in. Walking became almost impossible. A year later sphincter control was impaired, and he suffered much pain in his back, arms and legs.

Physical Examination.—Parallel with the development of the above symptoms, signs of a high cord lesion developed. A sensory level was never established owing to lack of cooperation of the patient, but there was cer-

tainly present a sensory loss over the greater part of the body. The left arm gradually became fixed against the ribs and the forearm flexed across the chest in contractures. There was atrophy of the thenar, hypothenar and interosseous muscles of the left hand. Slight voluntary power remained in the left thumb and forefinger. The right arm retained some motion at the shoulder and elbow joints; no pronation or supination, only the thumb and forefinger could be moved voluntarily. All the deep reflexes were hyperactive in both the upper and lower extremities. Patellar and ankle clonus as well as a positive Babinski sign were present on both sides. No epigastric, abdominal or cremasteric reflexes were obtainable. There was slight power in flexion of the right hip, none in the left.

The sphincters acted automatically. Involuntary contractions of the lower extremities occurred.

Continued Course.—During the last year of his illness he began to have difficulty in swallowing, his voice became querulous. He developed a decubitus ulcer over the sacrum.

June 23, 1904.—He became suddenly unconscious and died.

Autopsy.—Outside of the nervous system the liver shows quite marked cirrhosis and the lungs some apical scars. The brain is of medium size and shows nothing unusual except some atrophy of the frontal convolutions.

The whole cervical portion of the spinal cord is much enlarged especially in the third, fourth and fifth segments. There is an opaque whitish covering immediately beneath the pia-arachnoid and it is difficult to make out separate nerve roots above the fifth segment.

Microscopic Appearance.—The widest part of the tumor occurs at the level of the third cervical segment. Here the cord is 2 cm. wide and 1.5 cm. thick. Normal cord tissue is present in only a very narrow band around the periphery (Fig. 34). The character of the tumor growth resembles somewhat that of the preceding case. The cells are columnar or polygonal in shape with round or slightly oval nuclei. The growth consists of pseudorosettes, the cells of which radiate around blood vessels and the connective tissue enclosing these vessels. Depending upon the direction of section, these lobules show a typical round or elliptical formation or if cut in longitudinal section the cells are arranged in fringes around the mesodermic core (Fig. 35). With phosphotungstic acid hæmatoxylin it is seen that the portions of the cells braced against the vessel walls are fibrous prolongments instead of cell protoplasm as in the previous case (Fig. 36). This difference is due to the fact that most of the cells in this case belong to an earlier embryological stage, the ependymoblast, or ependymal spongioblast. Between the pseudorosettes however, many polygonal cells are seen without prolongations, in addition to cells with prolongments.

In the center of the tumor corresponding to the central canal zone is an amorphous mass of fibrin and cells. Surrounding and extending irregularly into it are projections, sometimes cut off as islands, of tumor tissue, the margins of which are composed of a single layer of columnar or cuboidal cells closely glued together, with homogeneous, dark staining cytoplasm and

pyknotic irregularly outlined nuclei, resembling in type the cells which normally line the central canal (Fig. 37). In some places these cells are seen heaped up beneath the surface and no sharp demarcation between them and the underlying tumor is demonstrable but the two blend into each other (Fig. 38).

With Haidenhein's iron hæmatoxylin stain on alcohol fixed material, cellular inclusions may be demonstrated which in size, position, shape and appearance correspond to the blepharoplasts considered characteristic of these growths.

Weigert preparations of the cord below the tumor show secondary degeneration of the direct and crossed pyramidal tract fibres and of fibres in the ventrolateral columns.

The ventral horn cells show a variety of diffuse cell changes, generally a breaking up of the stainable bodies, increased pigmentations and rarefaction about the nucleus. The latter is often pale or shrunken, dark and pyknotic.

A pyogenic meningeal infection is demonstrable at all levels. In the exudate streptococci in longer chains and in pairs are demonstrable. This may be looked upon as a terminal condition.

The positions of these tumors are helpful in determining their origin. The adherence of the first to the lamina terminalis and the ependymal-lined floor of the third ventricle, the intimate connection of the second with the lining of the temporal horn of the lateral ventricle, and the relation of the third to the ependyma of the central canal, leaves very little doubt that these growths have arisen from ependymal cells normally lining the cavities of the central nervous system. Reports of similar tumors in the literature have shown similar origins wherever the source of the growth could be determined. Thus Muthmann and Saurbeck,²⁶ by means of serial sections have demonstrated the origin of their tumor to be from the velum medullare posterior. Bailey,⁸ in addition to finding at operation all these tumors in Cushing's series to be located in intimate relation to the lining walls of the ventricles, has also been able to demonstrate postmortem very beautifully the origin of such a tumor from the velum medullare posterior.

All of our tumors are somewhat unique in their location since most of the reported cases occurred in the region of the fourth ventricle, Muthmann and Sauerbeck, Spiller,²⁵ Mallory,²⁴ Bailey and Cushing,⁹ Silberburg,²³ Hirsch and Elliott.²⁷ Hausmann's²⁸ case in a two-year-old child corresponded in position of the tumor to our first case. This fact simply goes to prove, however, that

tumors from the ependymal lining may conceivably arise from any part of the ventricular system or central canal. Indeed, one of Mallory's cases presented a tumor in the sacral region. Bailey at first included all the tumors of ependymal origin under the heading of *ependymomas*. Later⁶ he separated those showing a predominance of less mature cells as *ependymoblastomas*, while, if we interpret his latest views correctly, he tends to make less of this distinction at present. We are inclined to agree with the latter view. Although the distinction exists, the two types of cells are often intermingled in the same growth. The primitive ependymal cells are closely allied to the primitive spongioblasts. Tumors arising from the latter, the so-called neuroepitheliomas also have blepharoblasts within the cells. They differ from the ependymoblastomas in that they form true rosettes along the inner boundary of which the blepharoplasts align themselves, instead of pseudo-rosettes. Occasionally, however, one meets a tumor with both pseudo- and true rosettes as in the case of Roman⁷ when the diagnosis is difficult to make.

PINEALOMA.

Tumors occurring in the region of the pineal gland may be of various types. Those arising from the cells of the pineal parenchyma themselves although commoner than the others are also relatively rare. Only eight were present in Cushing's collection up to January 1, 1927. Although Askanazy⁸ contended that Pellizzi's syndrome—"macrogenitosomia præcox"—is associated only with teratomas of the pineal gland, this has been disproven by Horrax and Skoog, whose reports were evidently unknown to Askanazy, and later by Krabbe⁹ as well as Horrax and Bailey.¹⁰ It is quite possible, therefore, that a tumor arising from the pineal parenchyma may give rise to this syndrome. Inasmuch, however, as the history in the following case began after puberty had already normally taken place, this question did not come into consideration here.

CASE VII.—No. 36. *Tumor of the pineal region. Pinealoma. Male, symptoms of increased intracranial pressure since age of 14. Spontaneous relief by the establishment of cerebrospinal rhinorrhæa at 20. Death at 24 in status epilepticus.*

History.—The patient died at the age of 24 in January, 1904—10 years after the onset of his illness. When 14 years old he dived into a river and struck his head against a stone. He received a scalp wound but was not rendered unconscious. The wound healed without incident, but he began to suffer from daily headache and great weariness following upon mental effort shortly after the accident.

At seventeen he began to see double, then noticed that the left eye was turned inward. Soon thereafter vision in this eye grew dim. Gradually vision in his right eye also diminished until at the age of 19 he was totally blind.

A few months later he awoke one morning with the left side of his face, tongue and mouth numb and tingling. The numbness came in periods ten to fifteen times daily from then on, but an associated paralysis of the left side of the face was constantly present. He felt in a daze most of the time and at intervals silly or exhilarated. With the numbness he had occasional twitching of the left side of the face lasting 4 to 5 minutes, and on two occasions loss of consciousness for a minute or so.

During the next year he began suddenly to have continuous profuse leakage of watery fluid from the nose. Since then he improved mentally and the facial paralysis became less marked. On several occasions when the leak would stop he would feel stuporous and sleepy for as long as the leakage was blocked. After its reestablishment, however, he would wake as though from a normal sleep and feel much more himself again.

At the age of 22 he had a serious convulsion beginning in the right corner of his mouth, the head turned toward the right, then the seizure became generalized and lasted for 5 minutes. During it he bit his tongue and passed urine. He had no memory of the attack upon awakening. In the fall of that year he had two similar seizures.

Physical Examination.—Examination at that time showed nothing remarkable about his general appearance. He was totally blind, but could walk without staggering. There was a steady drip of clear, colorless fluid from his nose. Smell and taste were normal although he complained of odors which did not actually exist. The pupils were equal but did not react to light. His discs showed bilateral atrophy. There was a tendency of the eyes to roll upward and the left one to turn outward. Voluntary eye movements seemed unimpaired, however.

The jaw deviated toward the right, and there was a small area at the left corner of the mouth insensitive to pin-prick. The face was symmetrical, the tongue deviated slightly toward the right upon protrusion. Both knee jerks were exaggerated but Babinski's sign was negative.

Course.—The condition continued essentially unchanged for about a year, then he began to have convulsions. January, 1904, he went into status epilepticus and died.

Brain.—The convolutions show fairly marked flattening, and on section the ventricles are considerably dilated. In the region of the pineal gland, and extending both anteriorly into the third ventricle and posteriorly into the

aqueduct of Sylvius is a globoid tumor mass about 3.5 cm. in diameter. It appears darker than the surrounding brain tissues and seems to be completely separate from it (Fig. 39).

Microscopic Appearance.—Although no definite capsule exists the tumor is fairly well demarcated from the brain by a wall of proliferated neuroglia fibrillæ. The tumor is uniformly composed of bands and islands of large cells with large amounts of cytoplasm and usually easily distinguishable cell membranes. The nuclei are also large and for the most part vesicular. Some, however, contain a considerable amount of chromatin giving the nucleus a darker appearance. Many of the cells are double or multinucleated. They are arranged in rows or bands which are divided from each other by connective tissue septa of various thicknesses. Within these septa are located the blood vessels which are moderate in number (Fig. 40). Phosphotungstic acid hæmatoxylin preparations permit club-like terminations to the cells to be demonstrated similar to those belonging to normal pineal cells. Rarely neuroglia fibrillæ are also seen.

In the connective tissue are to be found a second cellular element of these tumors, the so-called lymphoid cells. These are much smaller than the chief cells of the neoplasm, but vary also among themselves in size. The majority are about the size of small lymphocytes. These cells are round with distinct cell membranes, but very little cytoplasm. The nuclei on first glance appear round, but on closer inspection they prove to be kidney-shaped. At times when the two poles that are bent toward each other are directed toward the eye the nucleus appears to be the shape of a dumb bell or to consist of two round bodies (Fig. 40). Although Berblinger considers them embryonic pineal cells, their exact nature is not known, but they seem to be a characteristic component of these pineal tumors.

This case is of interest clinically in that the mechanical obstruction by the tumor to the cerebro-spinal circulation was spontaneously relieved by a cerebrospinal fluid rhinorrhœa which undoubtedly prolonged the patient's life. Although the history is not clear upon this point, it is, in fact, not unlikely that the terminal status epilepticus followed upon a closure of the nasal leak. It is of interest to note that after years of communication between the ventricles and nasal cavities no sign of infection past or present were demonstrable postmortem.

Histologically, this tumor presents very little problem inasmuch as it obviously arises from the pineal parenchyma. Horrax and Bailey describe another tumor in this region consisting of much more embryonic cells which they call pinealoma of spongloblastic type, later called pineoblastoma by Bailey and Cushing. But in our case the cells were uniformly of the more adult type.

OLIGODENDROGLIOMA.

In their monograph on tumors of the glioma group Bailey and Cushing speak of a peculiar type of cellular tumor which they believe to be made up of oligodendroglia cells, on the strength of the resemblance of these cells by ordinary stains to oligodendroglia. They describe the neoplastic cells as having "spherical nuclei with a heavy chromatinic network, and surrounded by a ring of cytoplasm which stains very feebly by ordinary staining methods. Between the cells is an indefinite material which stains neither for neurofibrillæ, neuroglia nor connective tissue. This material may give the growth somewhat the appearance of the cross-section of a plant." In a later paper Bailey reports that twelve such tumors had occurred in Cushing's series up to January 1, 1927. In the literature he was able to identify only two others—that of Roussy Lhermittee and Cornil* (*gliome a petite cellule*) and that of Landau.

Clinically, the Boston authors find these neoplasms slow growing and prone to calcification. Grossly these neoplasms give the appearance of encapsulation and often attain so large a size that their removal is well nigh impossible.

The following case resembles in many respects the reported examples of oligodendrogloma.

CASE VIII.—No. 1445. *Oligodendrogloma left parietal lobe. Male, 25, history incomplete. Death due (?) to status lymphaticus.*

History.—The patient, a Porto Rican negro of 25, was transferred to the Manhattan State Hospital from Bellevue Hospital, New York City, June 21, 1923. The duration of symptoms is unknown since the patient himself could not give a reliable history. The only positive facts known were that he was screaming with pain in his head and attempting to jump out of the window and was taken to the latter hospital in this condition.

Physical Examination.—At the Manhattan State Hospital three weeks later he continued to complain of severe headaches. His general physical condition was fair. His pupils failed to react to light, other cranial nerves were negative. He was weak and unsteady on his legs. Gait was ataxic, Romberg positive. His right knee jerk was exaggerated and the left one absent. Clonus and Babinski were negative. A tremor affecting the tongue, fingers and face was present. Speech was ataxic.

Mentally he was euphoric and childish; partly disoriented. He admitted having had syphilis.

Blood Wassermann reaction was positive.

Course.—June 29, eight days after admission, he went into collapse and died.

Autopsy.—The thymus was persistent. Status lymphaticus and engorgement of the abdominal viscera were present.

Brain.—The convolutions are flattened especially over the convexities. In the posterior portion of the left parietal lobe on the convex surface is a growth which was very soft when fresh, but firmer in consistency than the neighboring brain after formalin fixation. The entire tumor is removable *en masse* (Fig. 42) but leaves a ragged surface behind, and as later noted microscopically is really an infiltrating growth. It is cone-shaped with the base of the cone about 4 cm. in diameter, on the brain surface—where the cortex proves to be infiltrated by tumor. At the apex of the cone there is considerable softening of the surrounding brain and a gelatinous cyst in the softened tissue.

Microscopic Appearance.—The junction of the brain and tumor is characterized by coarse parallel fibres of neuroglial origin and a zone of large coarse astrocytes and their prolongations about one-half cm. in width. The tumor itself, except where areas of necrosis have been replaced by thick bands of connective tissue, consists of uniform small round cells with scanty cytoplasm and small round, dark nuclei. In hæmatoxylin and eosin preparations a clear halo is present around the nucleus resembling in appearance the swollen oligodendroglial cells of Penfield (Fig. 43). The Cajal gold sublimate preparations show these cells as round bodies taking the gold fairly well, and among them both spongioblasts (Fig. 44) and astrocytes may be seen. The processes of the latter, as Bailey has pointed out, form the delicate intercellular fibrillæ. No mitotic figures were found.

Although this case is clinically unsatisfactory, it is pathologically a typical but small example of the so-called oligodendrogliomas. Unfortunately the autopsy was performed 32 hours postmortem so that oligodendroglia preparations by the Globus-Penfield modifications of Hortega's method were unsuccessful. We feel, however, that it is important not only to put on record another growth of this character, but also our conviction, that these tumors are of oligodendroglial origin. We trust that some one will, in the near future, have an opportunity to prove this conviction to be true by the successful impregnation of fresh tissue from such a growth by the specific method for oligodendroglia.

COMMENTS AND SUMMARY.

The fact that brain tumors are not more common among patients suffering from specific psychoses than among people generally eliminates them from an important place among the causative agents of mental diseases. On the other hand, mental aberrations commonly occur in patients having brain tumors which often suffice to

bring these sufferers to the psychiatrist. This alone is sufficient to interest the specialist in mental diseases in the recognition and understanding of these growths.

Among all the tumors occurring in the cranial cavity the gliomas are the least understood, and perhaps partly on this account the most to be feared. Many tumors of ectodermal origin occurring in the brain are of relatively simple structure, arising as they do, for example, from the pineal parenchyma, the ependymal lining, the cells of the choroid plexus, etc. Some, however, especially the so-called spongioblastoma multiforme, the most malignant of the group, owing to their extremely rapid growth, are but poorly known. The controversies, still open, concerning a name best able to suit this type of tumor are evidence of the divided opinions concerning it, for it is obvious that if everyone agreed as to its exact nature its name would speedily be agreed upon, too.

We were fortunate in having had an opportunity to examine twenty-four such tumors removed *in toto* with the brains at autopsy. The outstanding feature, as we see it after studying these growths, is their extreme multiformity, not simply in the original sense intended in naming them—viz., a great variation in the size and shape of their cells and nuclei and a great variation in appearance owing to the many stages of necrosis and repair, but rather in the nature itself of the cells. We found, for example, that considerable areas in five of our spongioblastoma multiforme and smaller areas in several more were composed of cells resembling primitive medullary epithelium, ependymal cells, astrocytes, oligodendroglia, etc. Where these cells occur, medullary epitheliomas, ependymomas, astrocytomas, oligodendrogliomas, etc., are at times so typically reproduced that had we been limited to an examination of these parts alone we would justifiably have made these diagnoses histologically. We are convinced, therefore, that transitional stages are much more common in gliomas than would appear from a study of fragments removed at operation. We feel, indeed, that serial sections of these tumors would probably reveal not only such areas as these in every tumor, but transitions from the one area into the other, and from the one type of cell into the other. In any part of a spongioblastoma multiforme, in fact, given a good preparation with Cajal's gold sublimate, astrocytes, astroblasts and unipolar spongioblasts may be demonstrated in addition to the bipolar spongioblasts

of which the main mass is made up. Furthermore, in one case, blocks of which reached us freshly fixed one and one-half hours postmortem, in formol-bromide, we were able to demonstrate a considerable number of oligodendroglia cells in the tumor by the Globus-Penfield modification of del Rio Hortega's method. All this makes us feel that the origin and development of the spongioblastoma multiforme involves the whole series of developmental stages of glial tissue and for this reason may be better named *glioblastoma multiforme*.

How tumors of glial origin arise is merely a matter of speculation. It seems to us that in some instances embryonic cell rests in the sense of Cohnheim, in response to some growth stimulus, form not only cells similar to themselves but others at different stages of development.

Another fact to keep in mind is that the demonstration by Robertson and del Rio Hortega that the "indifferent cells" of Bonome are mature cells (microglia and oligodendroglia), does not necessarily account for all the cells occurring among the long fibre tracts. We feel, indeed, that immature cells both with oligodendroglia and neuroglial potentialities are scattered throughout the nervous system even of adults, and that both these are at times stimulated to form new growths. Indeed, in our studies of oligodendroglia in response to brain injury²⁹ in adult animals we often saw cells the morphology of which left some doubt in our minds as to whether we were dealing with incompletely stained or immature elements. It may well be that further studies of the embryological development of the oligodendroglia will throw some light on the significance of these cells.

A third possibility is that embryonic remnants, besides growing into a neoplasm with cells corresponding to its arrested stage of development, may call forth a reaction on the part of neighboring cells, and these either by proliferation of immature types or differentiation of adult cells may add new elements to the original growth. Thus the occurrence of combined tumors as, for example, a spongioblastoma multiforme in which a localized area is of the medullo epithelioma type, may conceivably be explained on this hypothesis.

Bailey and Cushing have also shown that occasionally an astrocytoma proven histologically at one operation has dedifferentiated into a spongioblastoma multiforme by the time a second operation

had been undertaken. Any one or all these courses and probably still other more subtle ones may be followed by these tumors in their development.

CONCLUSION.

1. The incidence of brain tumors among psychotic patients is no greater than among patients in general hospitals. It amounts to anywhere from 0.21 per cent (Fisher) to 1.9 per cent (Knapp).

2. Of the 75 tumors in our collection, 48 per cent are gliomas and 30.6 per cent meningiomas.

3. Sixty-six per cent of the gliomas belong to the group of spongioblastoma multiforme, while 16 per cent are astrocytomas.

4. The spongioblastoma multiforme is an extremely rapidly growing tumor, giving rise to acute mental changes. The average duration of life from the onset of symptoms we found to be only 9.1 months, whereas, in the more benign astrocytomas the average survival period is three and one-half years.

5. Histological study reveals that there is no pure type of glioma in the literal sense. On the other hand, the classification of Bailey and Cushing proves to be valuable for the grouping of the tumors according to the predominating type of cells.

6. Spongioblastoma multiforme presents the greatest variability in its structure. While numerous bipolar spongioblasts, of which the tumor is supposed to consist, are seen, many other elements substantially differ, being either of a more immature type or of a more advanced stage of development. It follows that the term "spongioblastoma multiforme" fails to cover all the elements contributing to its structure, and the name "glioblastoma multiforme" seems to us more appropriate.

7. The occurrence of combined forms of glioma consisting of two fundamentally different types of growth in the same tumor is as high as 14 per cent in our series and even more if the smaller areas are taken into account. This high percentage we believe is due to the fact that we were able to study the entire tumor in each case. We feel that a study of a substantial number of brain tumors by means of serial sections may reveal an even greater number of combined forms which may in turn throw further light on the genesis of these neoplasms.

8. Besides the combined forms, many tumors show transitions between related types of cells as, for example, between astrocytoma protoplasmica and astrocytoma fibrillæ, ependymoblastoma and ependymoma, neuro-epithelioma and ependymoblastoma, etc.

9. One case of our series is presumably formed almost entirely by oligodendroglioma. Indeed, we believe that the oligodendroglioma play a much greater rôle in the formation of tumors of the glioma group, especially spongioblastoma multiforme, than has been hitherto suspected.

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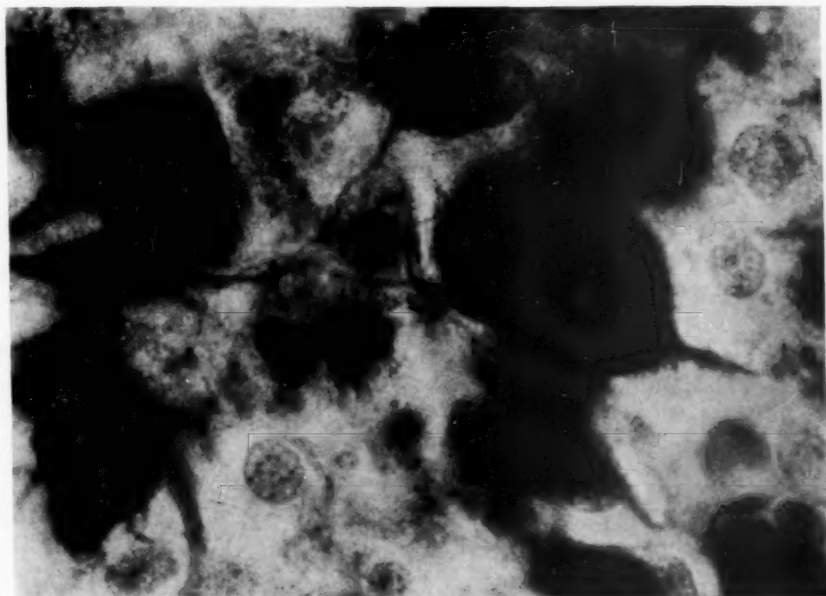


FIG. 1.—Spongioblastoma multiforme showing well stained spongioblasts and many cells in shadowy outline. $\times 1000$. Cajal's gold sublimate method.

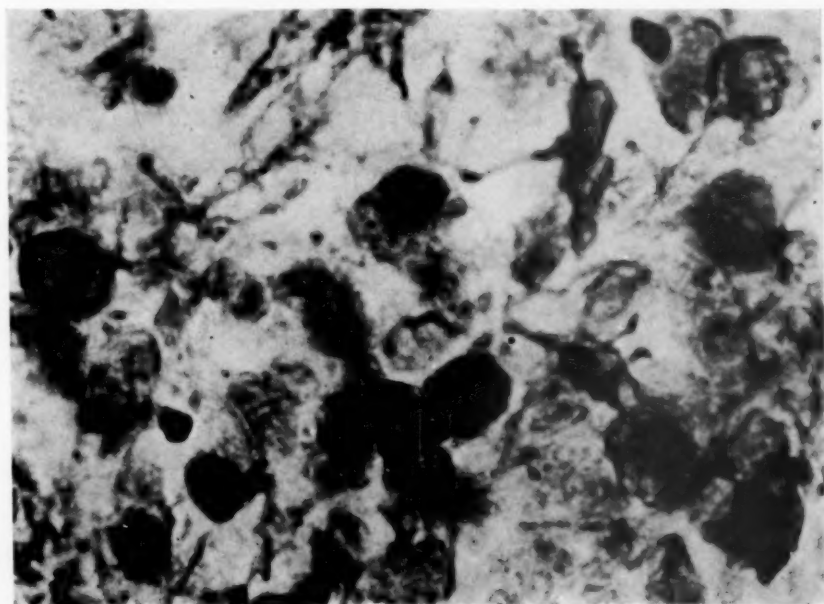


FIG. 2.—Spongioblastoma multiforme. Oligodendroglia are quite numerous in this case under favorable conditions of fixation and staining. $\times 500$. Hortega's method for oligodendroglia (Globus-Penfield modification).



FIG. 3.—Case I. Left cerebral hemisphere. Area marked "A" represents the place over which operative defect existed. Dotted line projects the subcortical extent of the tumor, superficially.



FIG. 4.—Case I. A cross section of the tumor showing the inferior horn of the ventricle entirely surrounded by growth. Slightly enlarged.

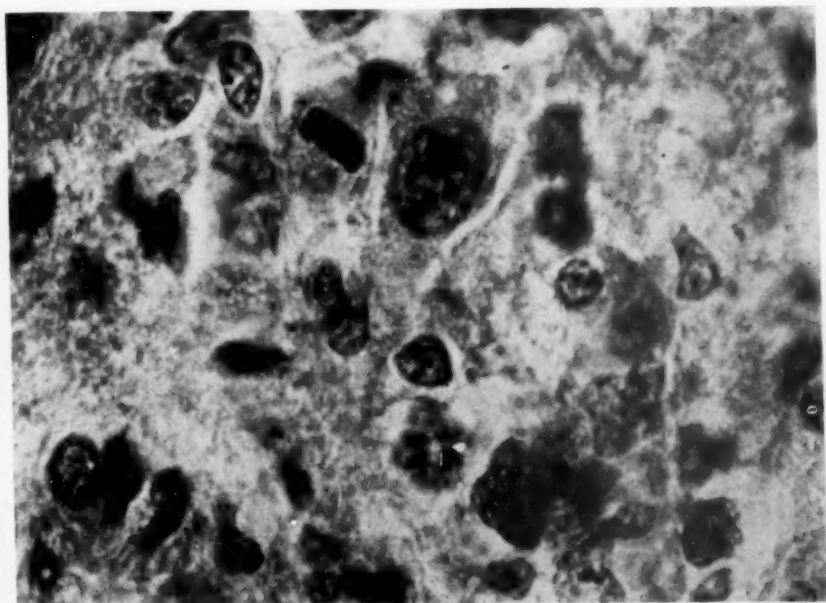


FIG. 5.—Case I. Spongioblastoma multiforme. The great variation in the size and shape of the nuclei, and a mitotic figure are represented. $\times 1000$. Hæmatoxylin and eosin stain.

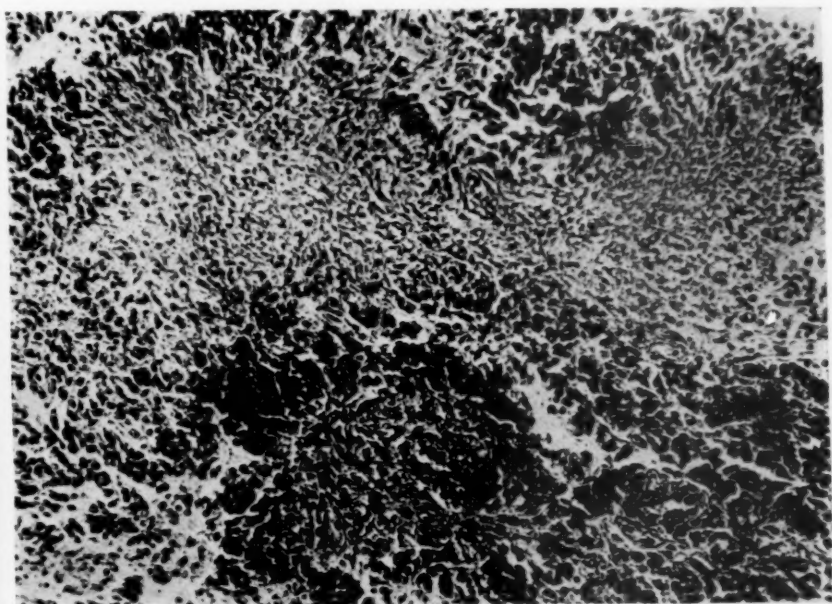


FIG. 6.—Case I. Spongioblastoma multiforme. Showing a necrotic area surrounded by pyknotic nuclei. $\times 60$. Hæmatoxylin and eosin stain.

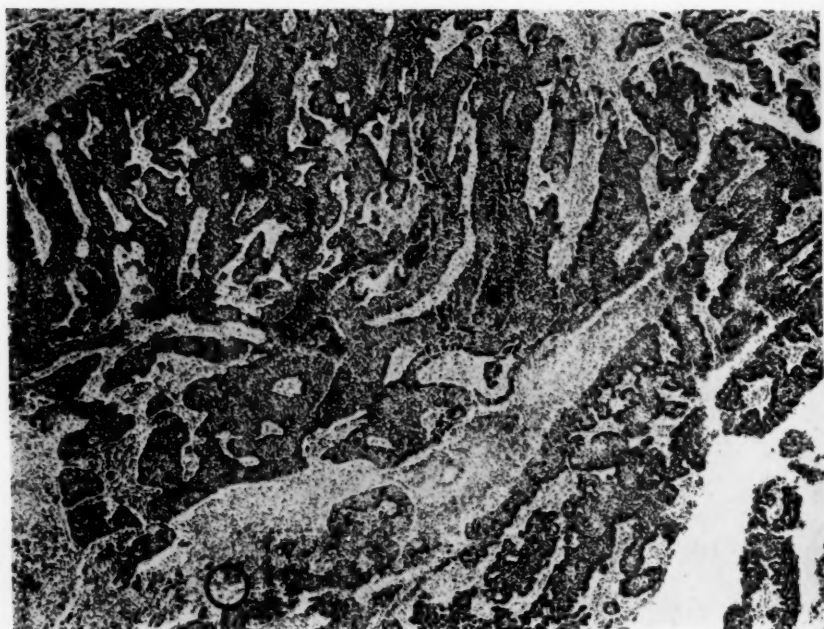


FIG. 7.—Case I. An area presenting the characteristics of a medullo-epithelioma in the midst of a spongioblastoma multiforme. $\times 60$. Hæmatoxylin and eosin stain.

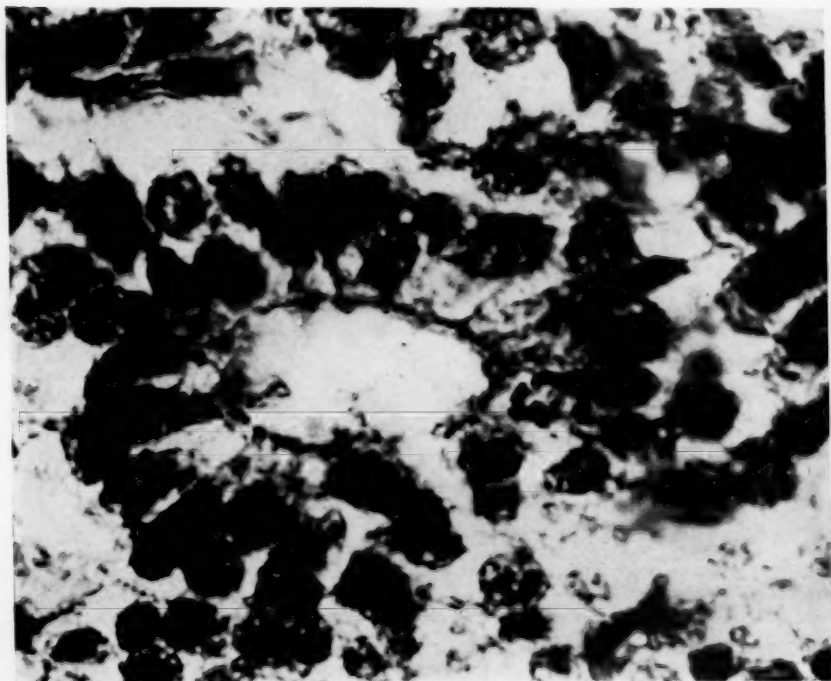


FIG. 8.—A rosette-formation occurring in the area shown in Fig. 7. Note the membrane forming just outside the inner extremities of the cells. $\times 1000$. Phosphotungstic acid hæmatoxylin stain.

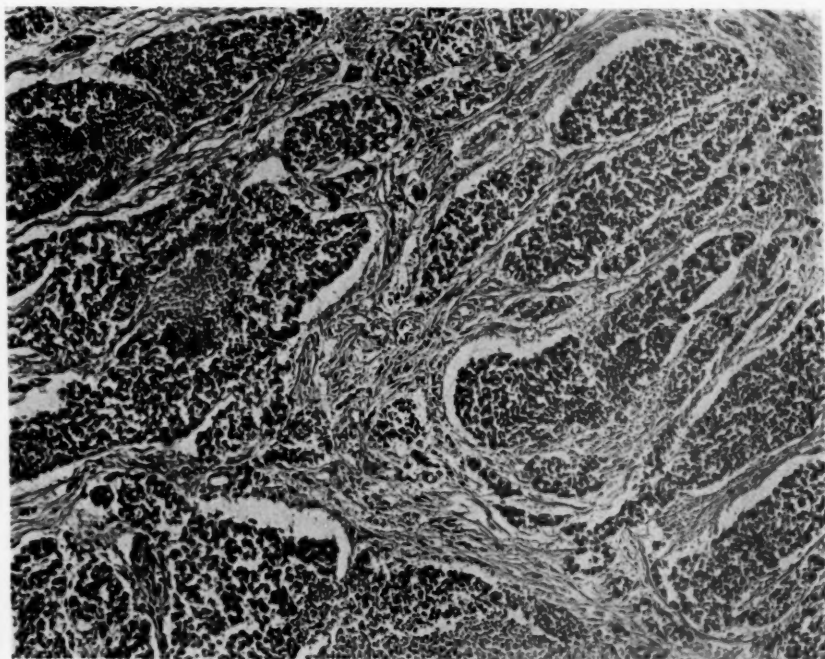


FIG. 9.—Bands of cells occurring in another spongioblastoma multiforme suggesting again the medullo-epithelioma. $\times 60$. Hæmotoxylin and eosin stain.



FIG. 10.—Case II. A spongioblastoma multiforme showing very marked degeneration and repair. The area marked "a" was softer and more elastic than the rest.



FIG. 11.—Case II. Spongioblastoma multiforme showing characteristic pseudo-palisade formations. $\times 60$. Hæmotoxylin and eosin stain.

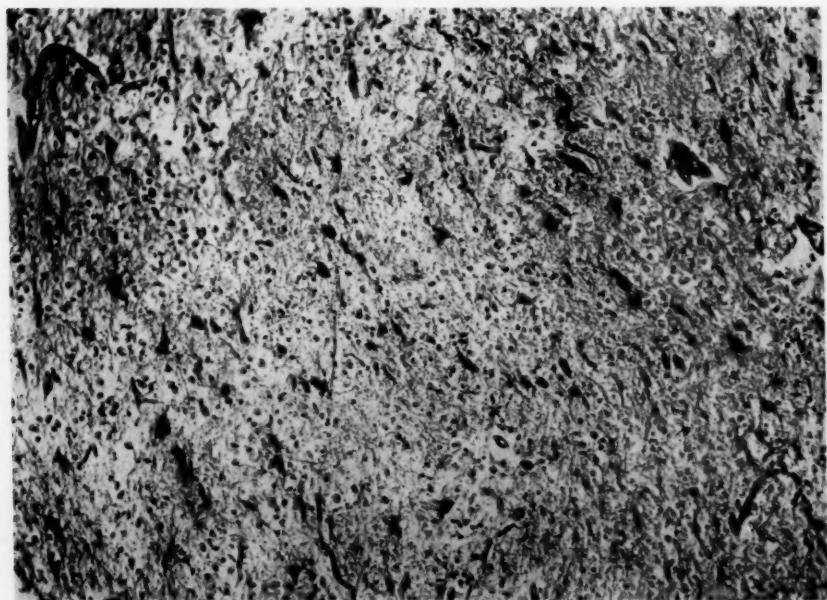


FIG. 12.—Case II. Characteristic astrocytoma from the area "a," Fig. 10, occurring in the midst of a spongioblastoma multiforme. $\times 60$. Hæmotoxylin and eosin stain.

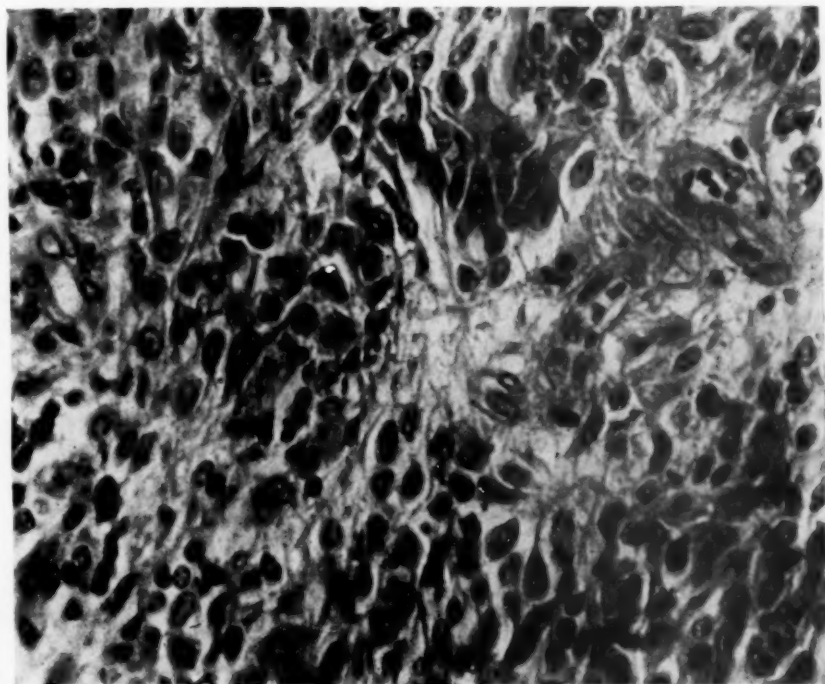


FIG. 13.—A typical spongioblastoma multiforme. $\times 372$. Hæmatoxylin and eosin stain.

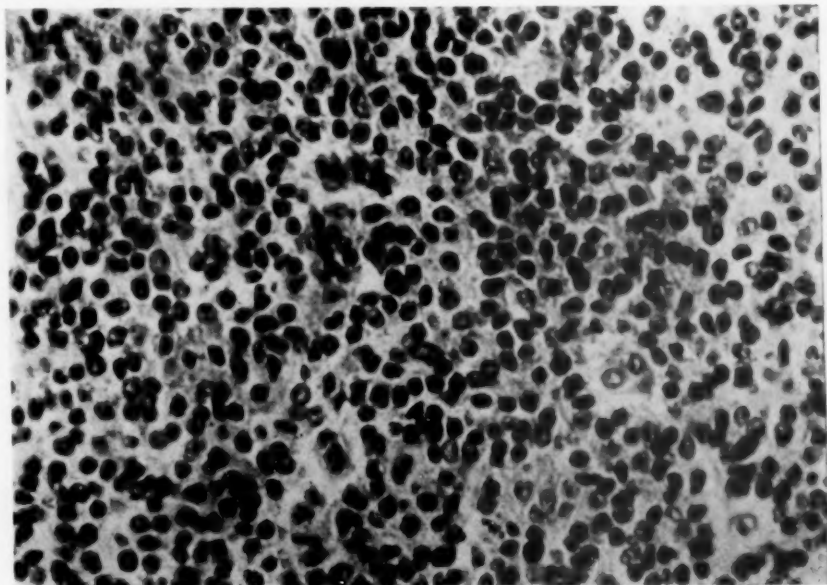


FIG. 14.—Another area from the same tumor depicted in Fig. 13, showing the uniform, round small nuclei representing a probable collection of oligodendroglia. $\times 372$. Hæmatoxylin and eosin stain.

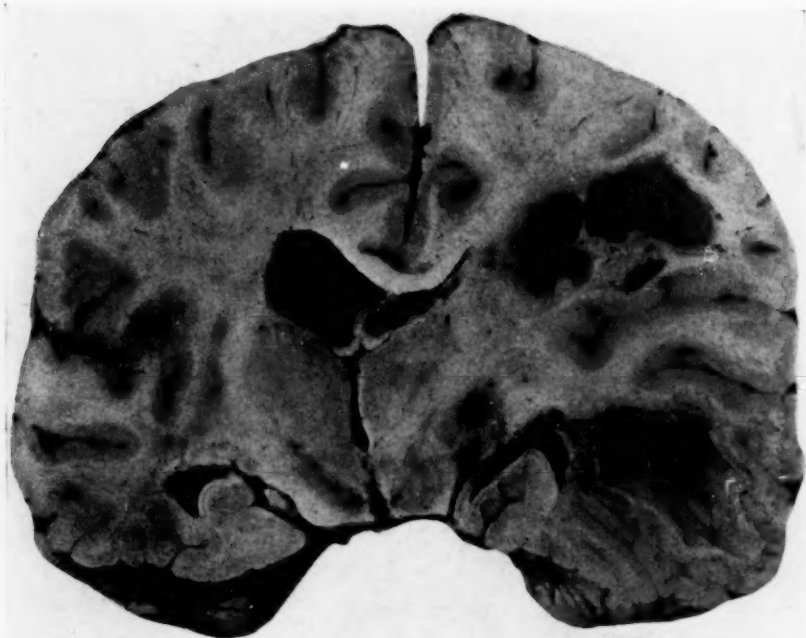


FIG. 15.—The gross appearance of an astrocytoma showing marked cystic degeneration.

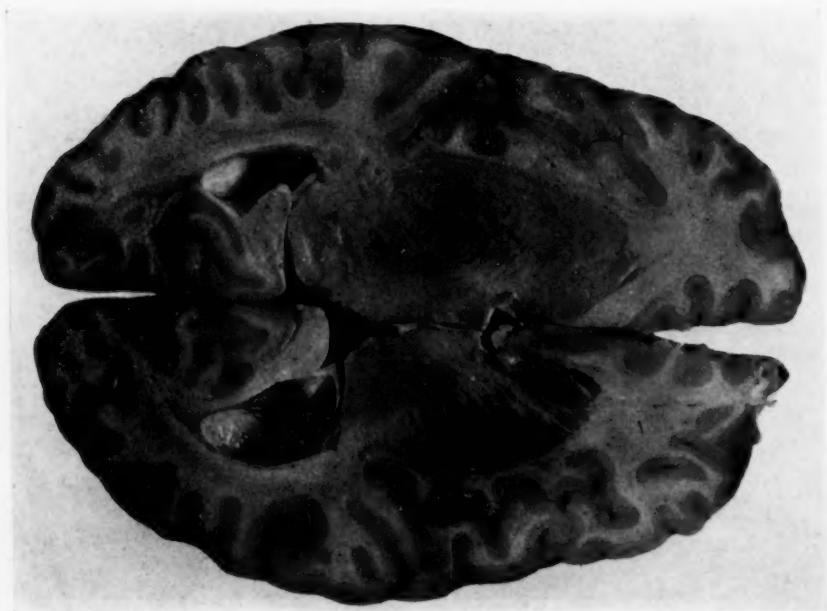


FIG. 16.—An astrocytoma "T" in the region of the pulvinar showing its close resemblance to normal cerebral tissue.

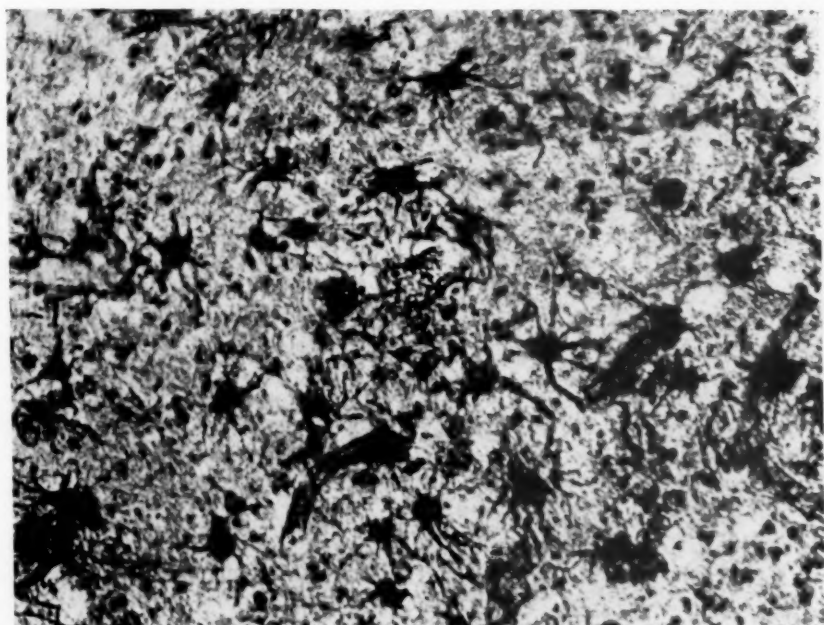


FIG. 17.—Protoplasmic astrocytes from an astrocytoma. $\times 250$. Cajal's gold sublimate method for neuroglia.

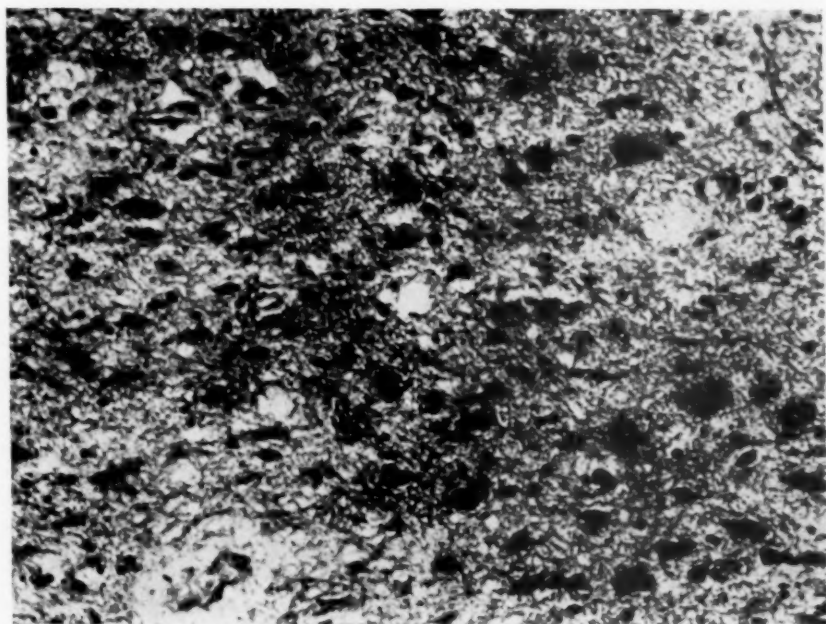


FIG. 18.—A felt work of neuroglia fibrillae from an astrocytoma fibrillare. $\times 250$. Phosphotungstic acid hematoxylin stain.



FIG. 19.—Case III. Spongioblastoma unipolare. A spherical tumor about 3 cm. in diameter lying just under the right anterior central convolution.

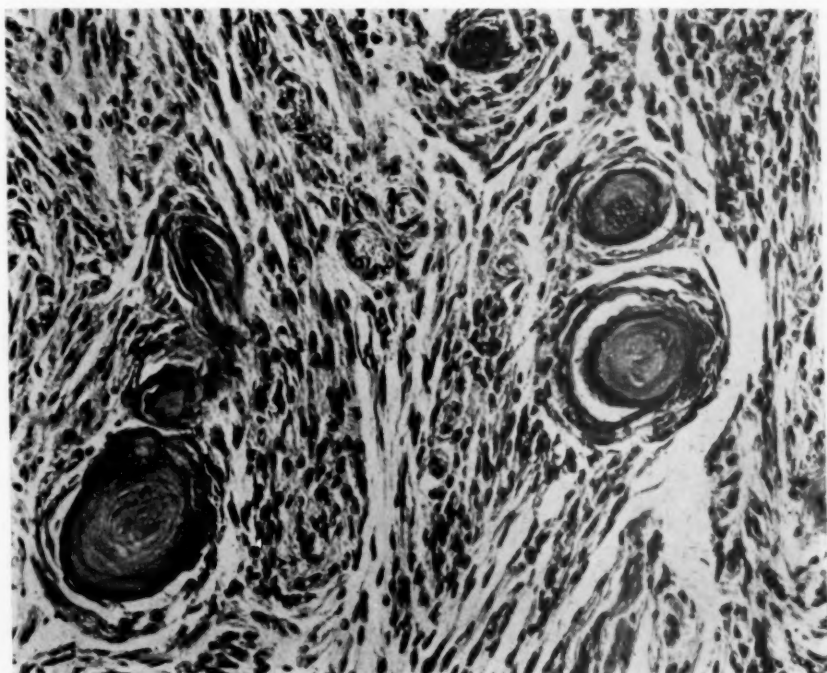


FIG. 20.—Case III. Section from a small meningioma found incidentally in the same patient who had a spongioblastoma unipolare. $\times 250$. Hæmatoxylin and eosin stain.

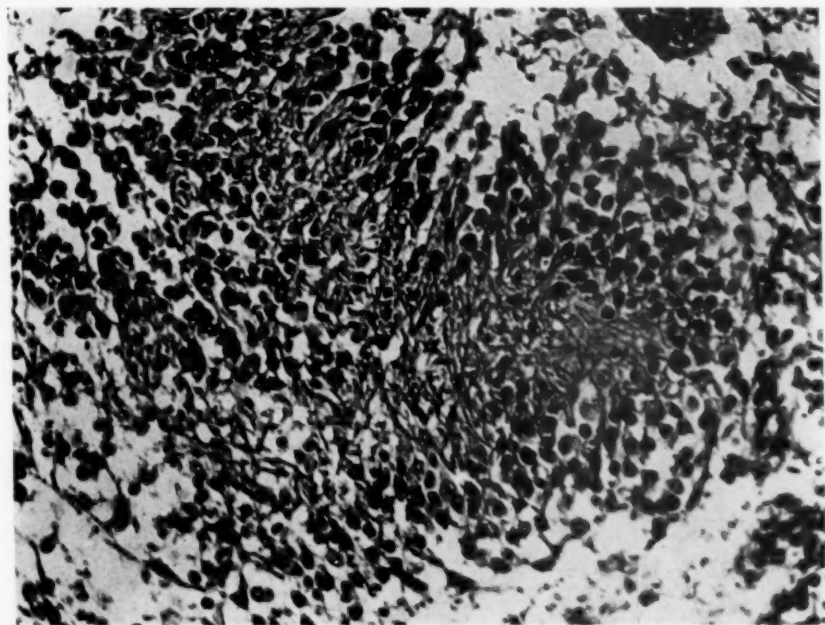


FIG. 21.—Case III. Spongioblastoma unipolare. Showing the single prolongments of the cells entangled with each other. $\times 250$. Phosphotungstic acid hæmatoxylin stain.

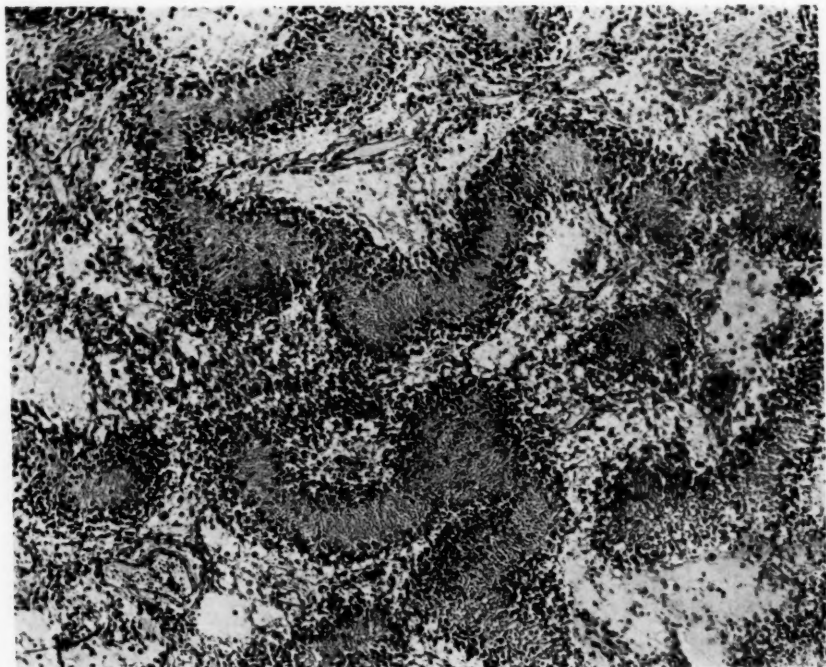


FIG. 22.—Case III. Spongioblastoma unipolare. Colloid degeneration is evident between the rows of spongioblasts. $\times 60$. Hæmotoxylin and eosin stain.

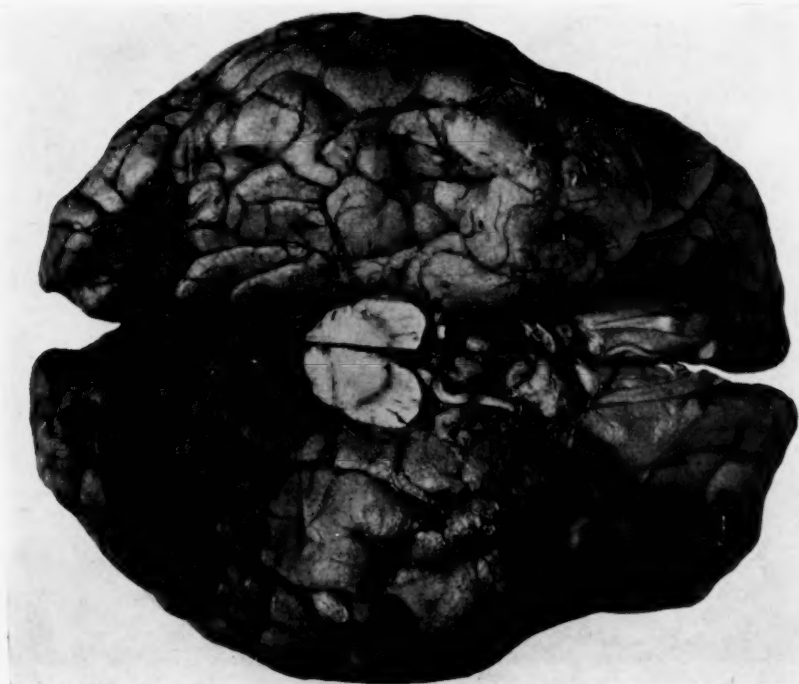


FIG. 23.—Case IV. Ependymoma. The bulging floor of the third ventricle and the involvement by the growth of the left optic nerve is obvious.

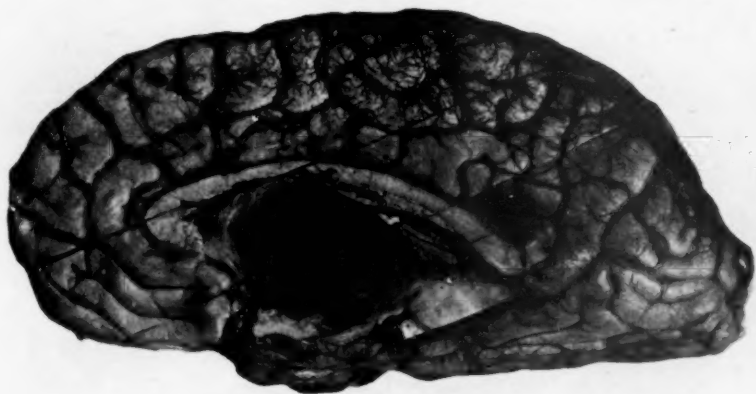


FIG. 24.—Case IV. Ependymoma. Showing the globoid tumor filling the cavity of the third ventricle.



FIG. 25.—Case IV. Ependymoma. The tumor is seen in its lateral extent. There is, in addition, a cyst occupying the space where the left globus pallidus and putamen are normally situated.

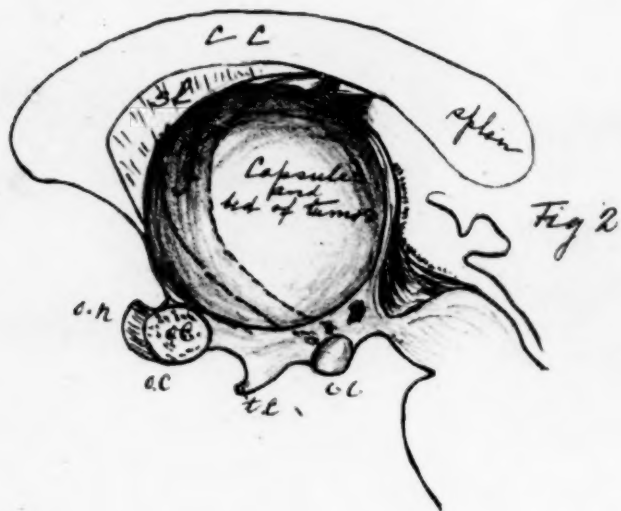


FIG. 26.

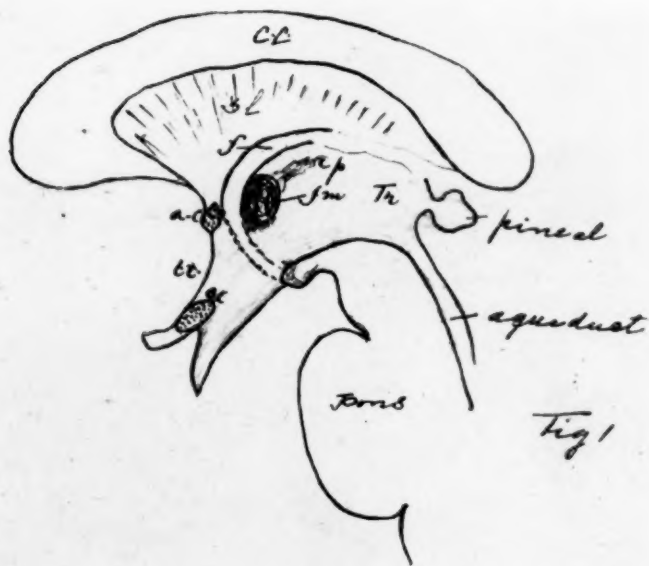


FIG. 27.

FIGS. 26 AND 27.—Case IV. Sketches to show the relation of the tumor to the adjacent brain structures, and relation of these to each other in a normal brain.

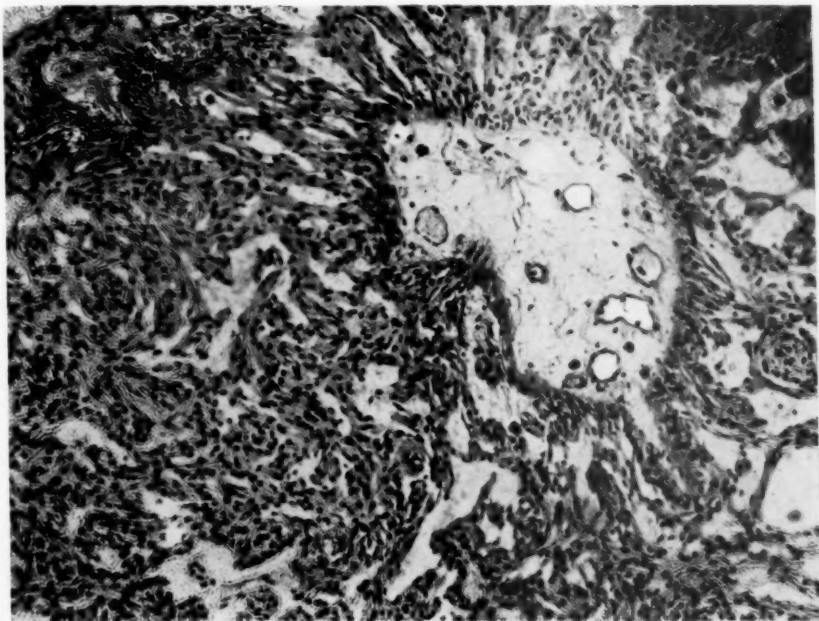


FIG. 28.—Case IV. Ependymoma. Blood vessels and connective tissue surrounded by columnar cells of ependymal origin. $\times 60$. Hæmotoxylin and eosin stain.

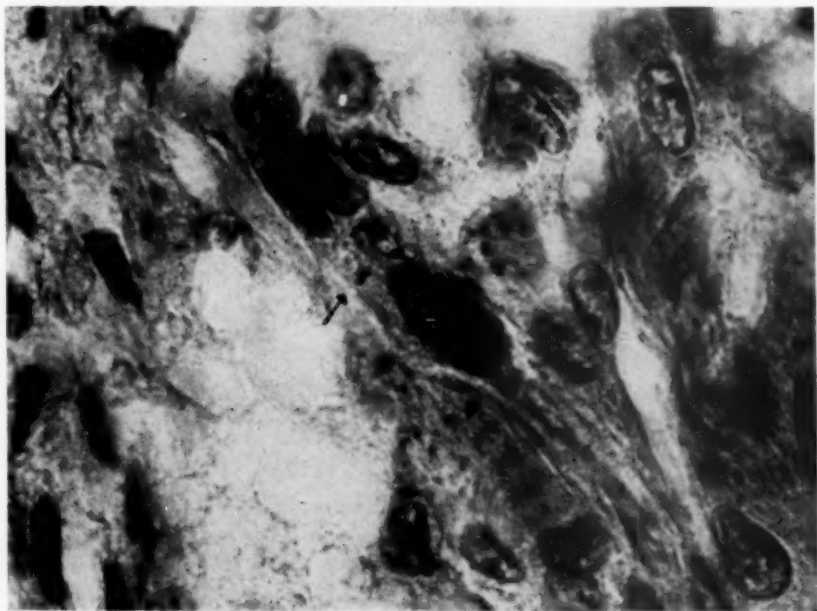


FIG. 29.—Case IV. Ependymoma. The cells contain rod or dot-like bodies two to six or eight in number representing blepharoplasts. $\times 1000$. Ethyl-violet orange-G (retouched).

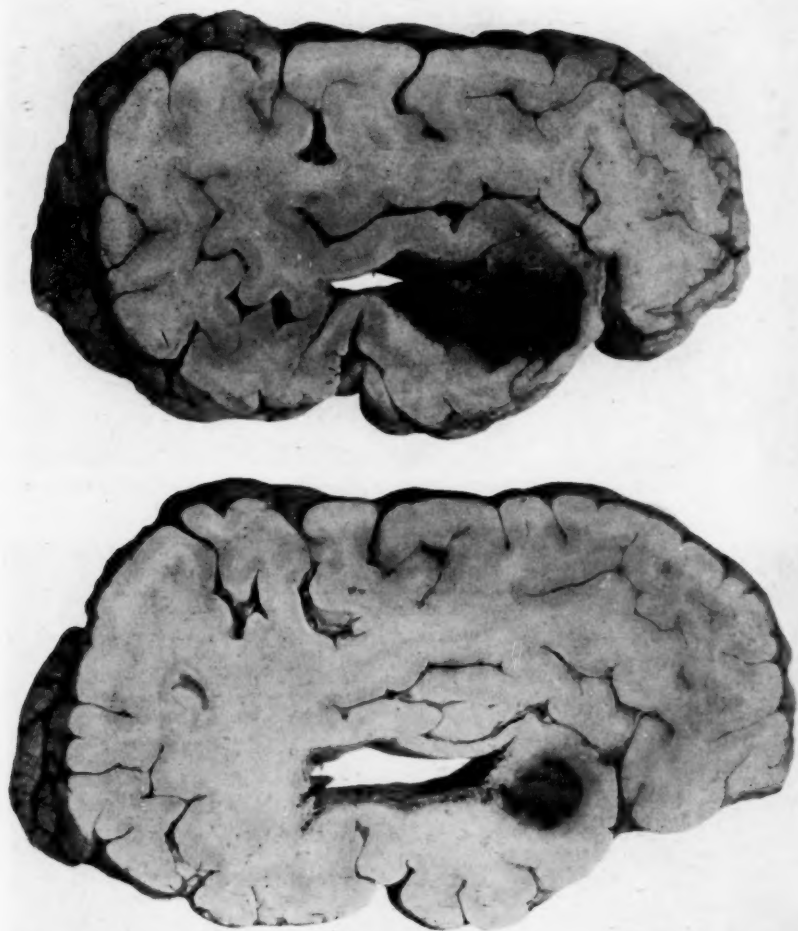


FIG. 30.—Case V. Ependymoma. A small infiltrating tumor confined to the temporal pole and involving the floor of the temporal horn of the ventricle.

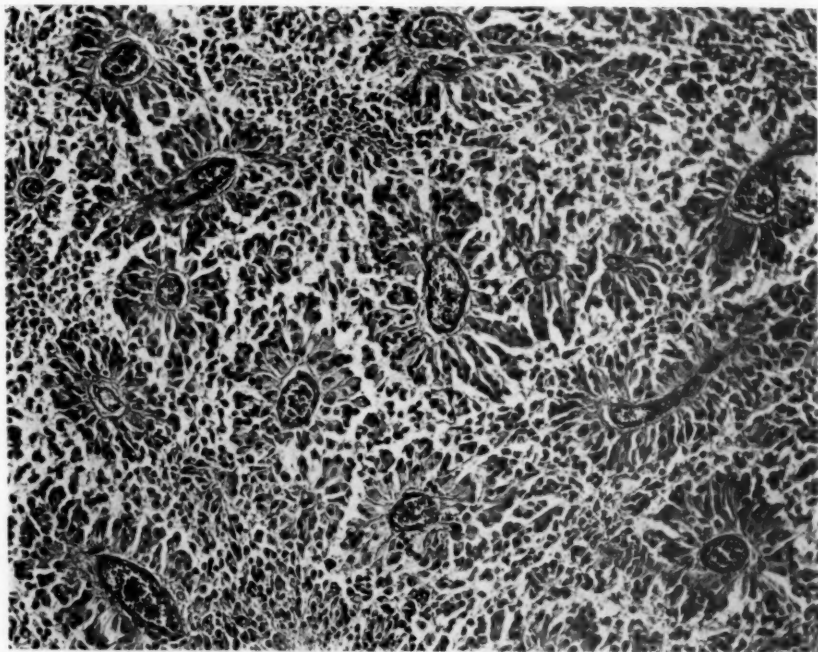


FIG. 31.—Case V. Ependymoma. The cells are cylindrical and arranged radially around the blood vessels in the form of pseudo-rosettes. $\times 60$. Hematoxylin and eosin stain.

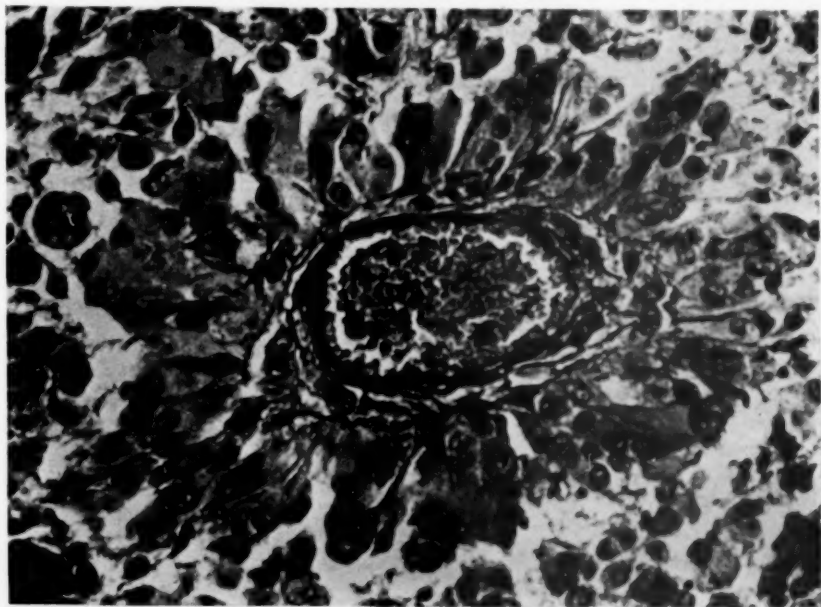


FIG. 32.—Case V. Ependymoma. The cells surrounding the blood vessels touch the vessel wall by means of the cell protoplasm—not cellular prolongments as is the case in ependymoblastomas (see Fig. 36). $\times 380$. Phosphotungstic acid hematoxylin stain.

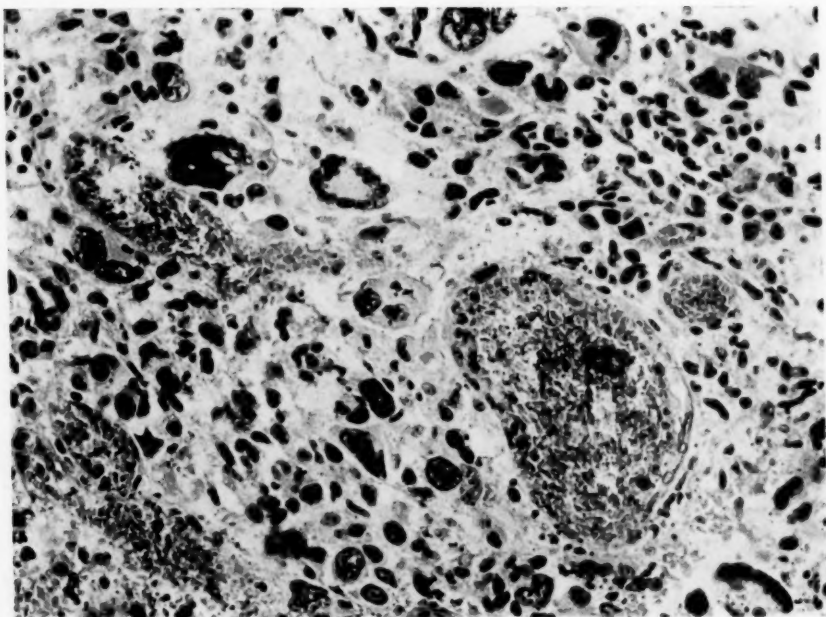


FIG. 33.—Case V. An area of spongioblastoma multiforme occurring in the midst of an ependymoma. Note the varying size and shape of the nuclei, and the numerous giant cells. $\times 250$. Hæmatoxylin and eosin stain.



FIG. 34.—Case VI. Ependymoblastoma. Cross section through the middle of the tumor showing the entire cord occupied by the growth, except for a narrow margin at the periphery. $\times 10$. Hæmatoxylin and eosin stain.

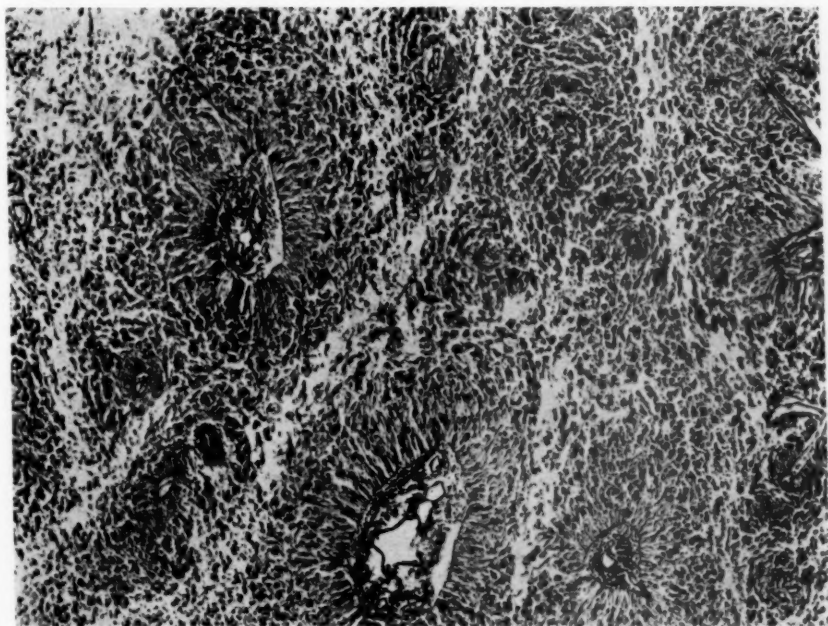


FIG. 35.—Case VI. Ependymoblastoma. The cells are arranged radially around the blood vessels. $\times 60$. Hæmatoxylin and eosin stain.

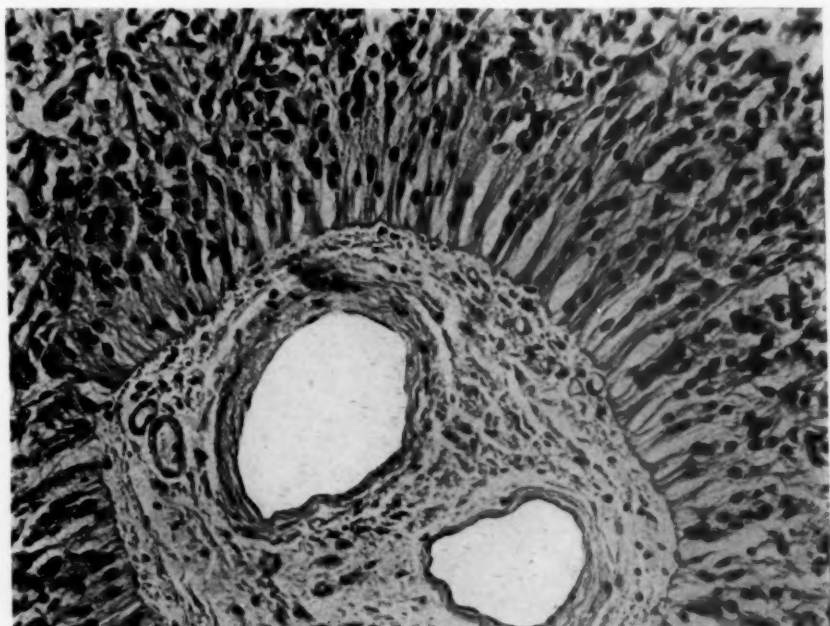


FIG. 36.—Case VI. Ependymoblastoma. It will be noted that the parts of the cells abutting the vessel wall consist of strong, wiry prolongments. $\times 380$.

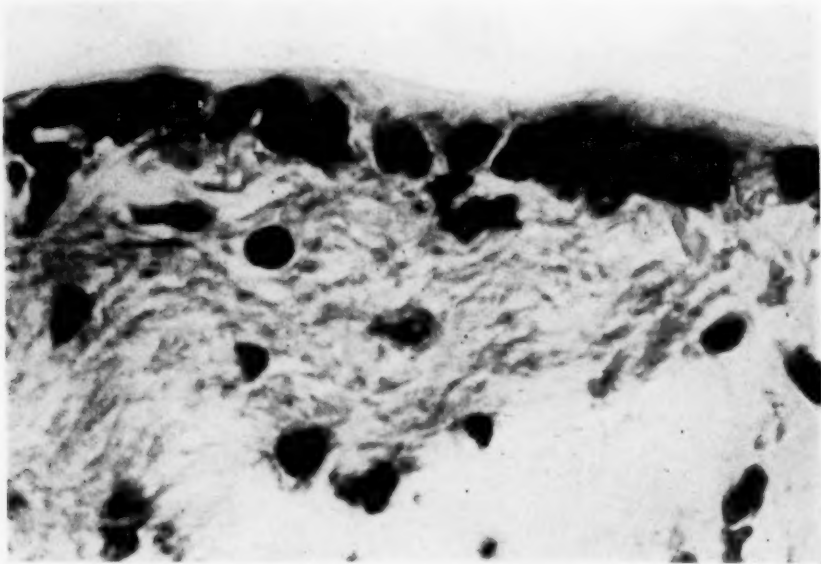


FIG. 37.—Case VI. Ependymoblastoma. Amorphous masses of fibrin and cells near the center of the tumor are lined with cells resembling the normal ependymal cells of the central canal. $\times 500$. Hæmotoxylin and eosin stain.

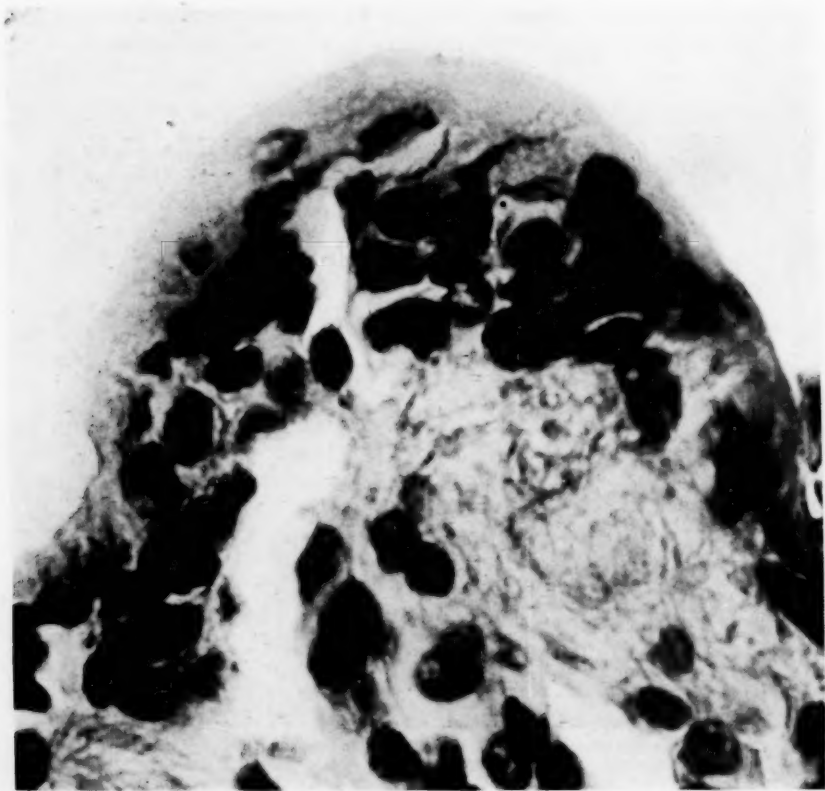


FIG. 38.—Case VI. Ependymoblastoma. In places these cells (Fig. 37) are seen heaped up beneath the surface and pass over into the tumor cells beneath them. $\times 500$. Hæmotoxylin and eosin stain.

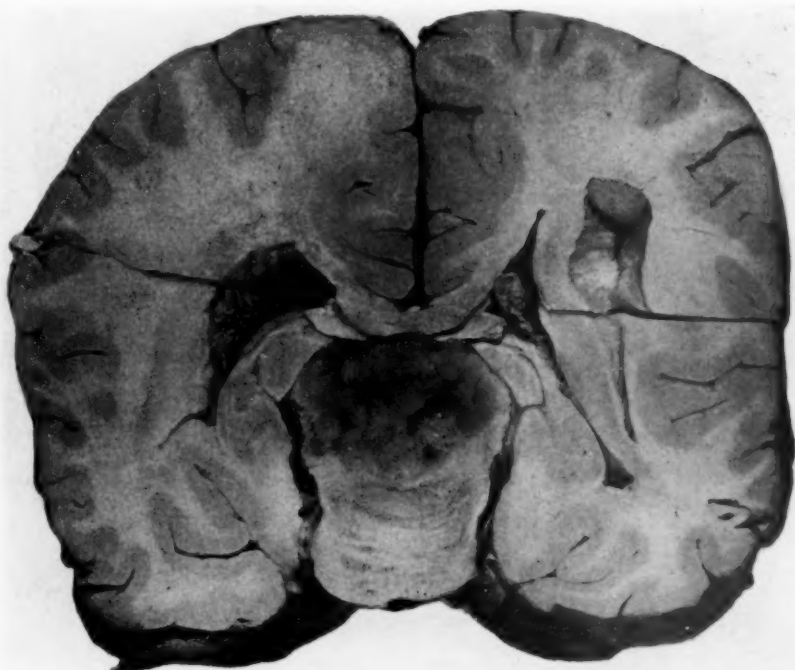


FIG. 39.—Case VII. Pinealoma. The tumor is seen to occupy the pineal-region and to compress the surrounding structures. Note the dilated ventricles.

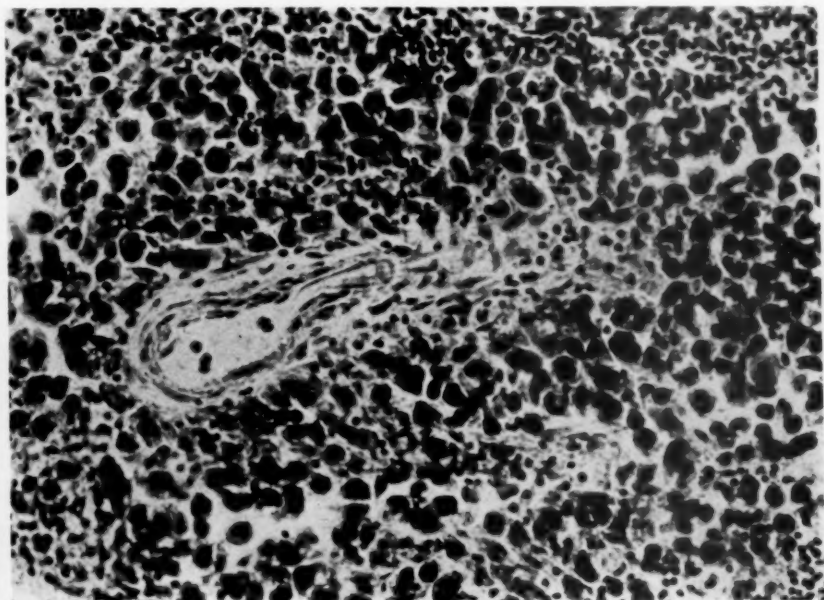


FIG. 40.—Case VII. Pinealoma. Note the two types of cells characteristic of these tumors. $\times 250$. Hamotoxylin and eosin stain.

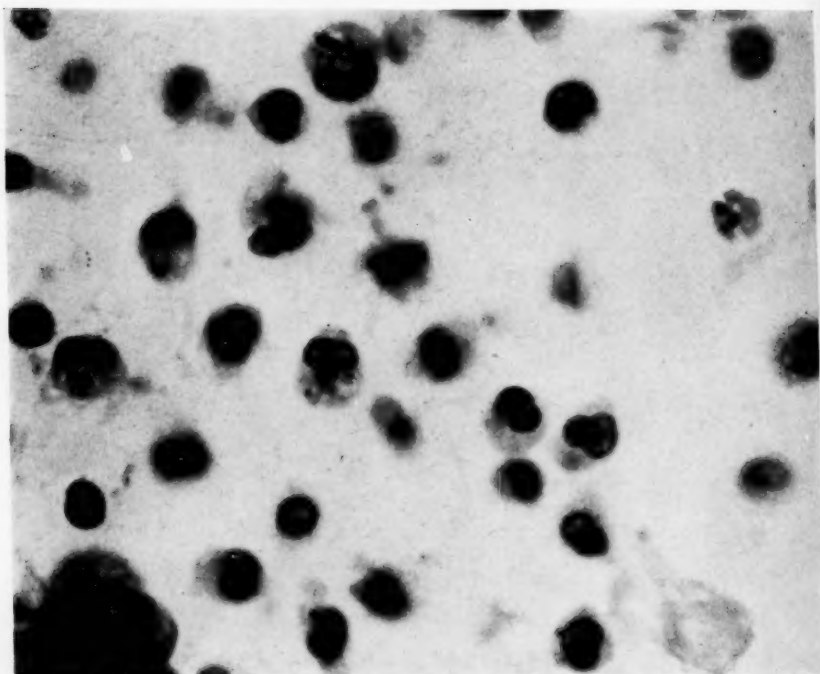


FIG. 41.—Case VII. Pinealoma. The lymphoid cells actually have kidney-shaped nuclei.
× 1000. Hæmotoxylin and eosin stains.



FIG. 42.—Case VIII. Oligodendroglioma. Showing a portion of the tumor and the ragged bed left after its removal. Actual size.

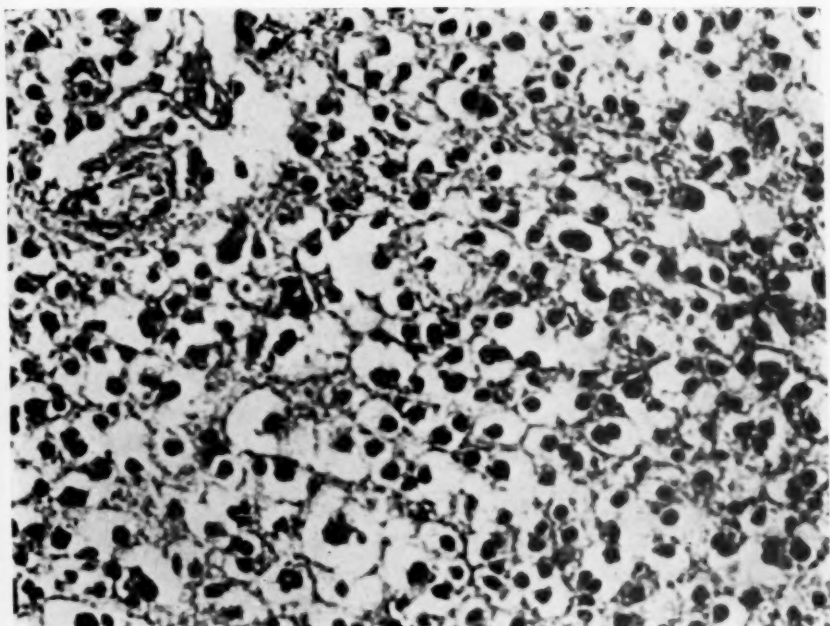
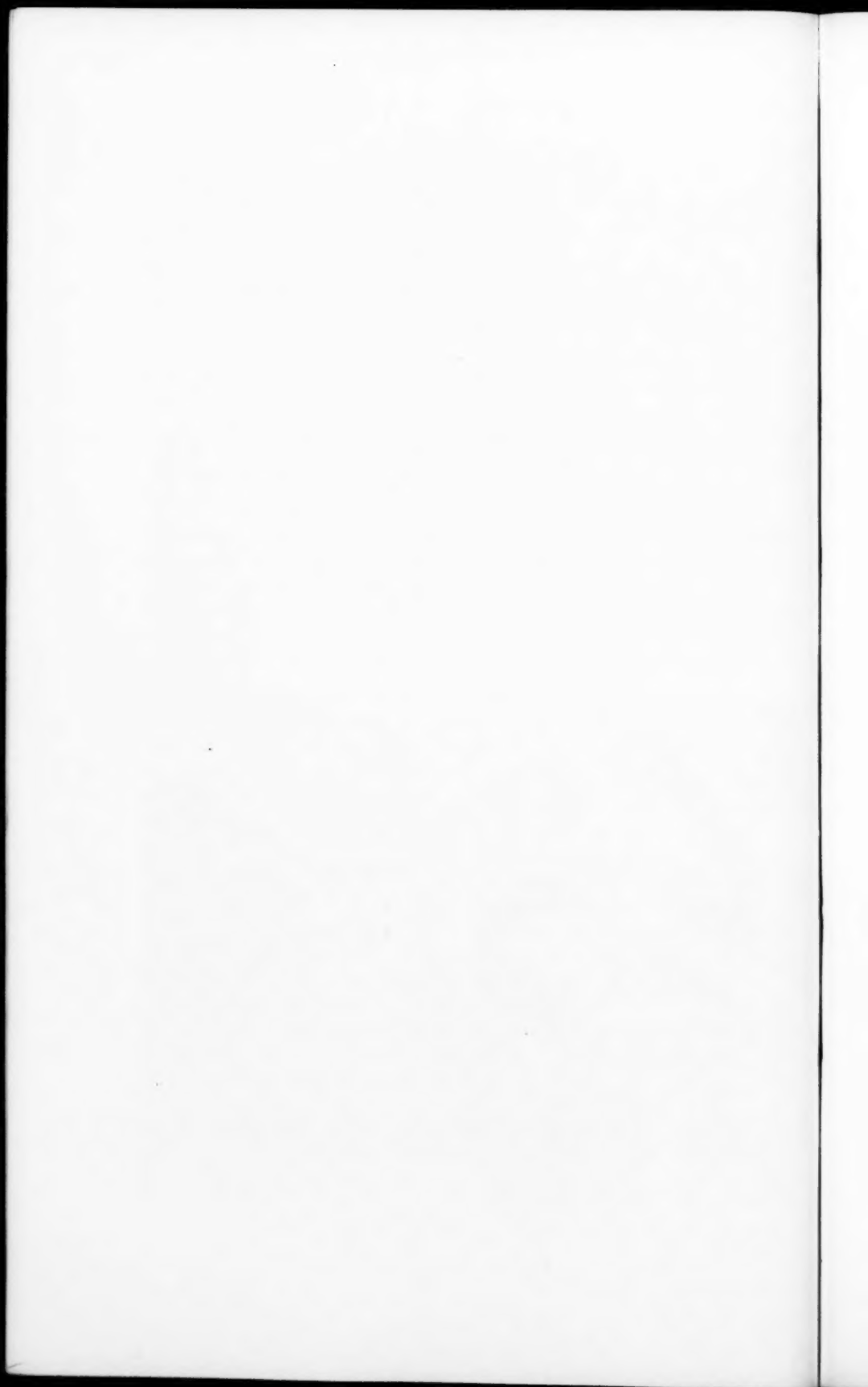


FIG. 43.—Case VIII. Oligodendroglioma. The nuclei are small and round and the cytoplasm is unstained. $\times 372$. Hæmotoxylin and eosin stain.



FIG. 44.—Case VIII. Oligodendroglioma. The cells stain indefinitely by the gold sublimate method, but among them, spongioblasts may be identified. $\times 500$. Cajal's gold sublimate method.



THE THREE LEVELS OF CORTICAL ELABORATION IN RELATION TO CERTAIN PSYCHIATRIC SYMPTOMS.*

By SAMUEL T. ORTON, A. M., M. D., NEW YORK CITY.

This paper may be considered as a provocative for while much of the material presented here rests on a solid observational basis, other parts of it are deductions as yet less susceptible of direct proof. They are, however, highly suggestive in their inferences and may readily lead to further corroborative observations.

Studies of the phylogeny of the central nervous system reveal that of the higher animals to be essentially a pyramid of partially autonomous structures each with its own functions to perform but each under greater or less guidance from superior structures. Thus we recognize the asynaptic nervous system which is completely autonomous in worms as a partially autonomous system in the mammals. It is here under directional control of the sympathetic which again is under the general direction of the spinal centers (lateral horns) and so on up the pyramid. Except in the lowest level in which both the functions of reception and response are carried out by one structure (the asynaptic net) we find a fairly clear subdivision of function into receptor, conductor and effector groups, and it is at the middle link of this chain—the conductor—that control and direction from higher centers is implanted. A certain degree of integration is, as Sherrington has pointed out, a function of the selective action of the receptor mechanisms which are responsive to only one kind of stimulus and hence by this choice make the first step in relating motor responses to environmental changes. A considerably greater degree of integration, however, is probably effected by the conductors. Thus at the spinal level we see in amphioxus a very large part of the animal's reactions under the integrative control of the proprio-spinal cells. Similar propriospinal mechanisms are to be seen in mammals in the action patterns resident in the spinal cord which are revealed as fairly complex integrations (such as the scratch reflex and the

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

extensor thrust) which remain after the control of the higher centers is removed by a high spinal transection.

At each subcortical level in the higher animals we can, I think, demonstrate a conductor pathway with certain inherent integrative capacities which are more or less submerged in the adult by reason of a greater assumption of control by the higher centers. These lower mechanisms retain their autonomy in case of defective development of the higher centers, or after they have been submerged autonomy may reappear as what I have called resurgence by defect * in case of destruction of the higher centers or interruption of their paths of control. A concise example of this is to be seen in the mechanism controlling evacuation of the bowel. In the new born child this is a purely automatic function, probably subserved by the lumbar centers of the spinal cord alone. When very serious defect of the brain exists as in the anencephalic and in the lowest idiots this automatism persists. In normal children the dominance of the higher centers is gradually established and voluntary control of evacuation results. That the early mechanism remains intact, however, is abundantly shown both by the way in which it enforces its demands, in spite of volition, if its signals be too long disregarded and also by its resumption of automatic control when the pathways from above be cut as in a complete transverse myelitis. A somewhat similar revelation of the functions of various levels is to be seen in anæsthesia. First to go is the phenomenon of consciousness, but there remains at this time (excitation stage) a considerable degree of fairly well coördinated and rather blindly purposeful movements. As this subsides with deeper anæsthesia there still remains an adequate integration of the respiratory and cardiac control mechanisms and if in the experimental animal anæsthesia be pushed to the extinction of these vital processes we can still observe, on opening the abdomen, peristaltic waves in the intestines which bespeak the functional integrity of the asynaptic system and, since they are integrated in a caudal propulsive direction, probably of the sympathetic as well. Somewhat parallel although less clear cut conditions are to be observed in the dementias.

* Orton, Samuel T. Lectures in Neuropathology, I. Arch. Neurol. & Psych. XV, 1926, November, p. 763.

If we carry these same concepts forward into the cerebral functions we can, I think, apply them to certain phenomena related to various stages of cerebral elaboration or, if one prefers psychological terminology, to certain levels of consciousness. And at each of these levels we have some evidence of the existence of integrative pathways between the receptor and motor mechanisms by which a cross over may take place, giving rise to motor responses which although of cortical and hence conscious grade, are yet of a rather low order.

The separation of the sensory functions of the cortex into three levels rests on a combination of both anatomical and clinical data. Munk in his classical extirpation experiments in dogs gave us the first key to differential losses of function within the visual field. Since then many human cases have been recorded which have added much pertinent material, but which have also given rise to a very active dispute between those who adhere to a strict pigeonholing of separable functions and those who believe that this is not possible. This contention recalls that which arose between Flourens with his dictum that the "brain secretes thought as the liver secretes bile" and Goll who was the father alike of modern cerebral localization and her bastard sister phrenology. The current discussion has, however, rather overrun its bounds in that it has led to a tendency to discard all evidence of localization while it is actually applicable only to functions of the third or symbolic level. Everyone recognizes the localization which exists in the motor zone and no student of cortical histology can lightly pass over the really striking differences in cortex structure which are encountered in various areas of the brain. If, as elsewhere, structural differences arise from different functional activities we must assume that two cortices with entirely different structural patterns serve different purposes. This is a most obvious condition in the area striata or calcarine cortex where the striking band of fibres known as the line of Gennari or the stria of Vic d'Azyr) is so conspicuous that the limits of this area can be readily made out by naked eye inspection in a fresh brain. The high specialization of the stellate lamina into three fairly well-defined subdivisions is another of the landmarks of this zone. At other places in the cortex the distinguishing features are not so obvious and often a rather careful microscopical analysis is necessary to determine boundaries.

In the visual field with which I am best acquainted, we find the clear cut area striata surrounded by a very different type of cortex, the common occipital, which is sharply delimited from the calcarine which it encloses on practically all sides, but much less easily differentiated from its neighbors on its outer boundaries—the parietal, angular and common temporal types. It has, however, certain characteristics that are quite differential if comparison be made between sections taken from the middle of its extent rather than from its border with similar sections from the surrounding zones. Thus, I think we can accept two main types of occipital cortex with various minor topical variations. Similar separation can be made in the auditory sphere and also, though somewhat less accurately, in the zone of reception of the epicritic fraction of spinal sensations. Between these lies the great posterior association zone of Flechsig which is the major bone of contention in the discussion of localization to-day.

On the clinical side the three levels rest on observations in cases both of brain destruction and defective function. The evidence from destructive lesion may be epitomized in the three clinical conditions: (1) Cortical blindness in which there are no conscious visual processes and yet in which the lower reflex phenomena of the eye remain; (2) mind blindness in which the animal or individual can move about without collisions but does not recognize the meaning of objects seen; and (3) word blindness in which pictorial sensations are adequately used but language associations (in the broad sense) are defective.

The second of these conditions is beautifully described by Munk in his early extirpation work with dogs and is also on record in human cases. The third, that of alexia or word blindness has been vigorously challenged by Head and while pure cases of loss of ability to read without other effects on the language function do not occur, yet there are many cases which show a much greater interference with the visual element in speech and writing than with the auditory and evidence of this functional level is brought into clear relief in another group of cases. I refer here to cases of strephosymbolia or the reading disability—those cases which have been called congenital word blindness. While I believe this condition to rest on a physiological basis and not to be the result

of either general or focal defects of development, yet there can be shown a disjunction between the visual and auditory operating electively at the third or concept level so that reading and writing (as judged by intelligibility and not by legibility) are all but impossible. We can, however, in these same children demonstrate very often an adequate or even superior use of visual material of less highly elaborated form. Thus they are often quite skillful in crafts, arts, sports, with musical instruments, etc., and they may make good use of pictorial matter and yet be quite unable to read. Thus one of my cases, a boy of 17, whose reading capacity was less than that of the average child of first grade standing was employed in his spare time in a bakery cutting dough for loaves and was quite successful in judging by eye the correct amount of dough for each loaf. Further, he obtained a rating by the Healy Pictorial Completion Test within that of the highest 10 per cent of adult normals. This boy also could copy from print into script with practically no errors, and yet had no idea of the meaning of what he had copied, while his spontaneous writing was an unintelligible jargon of neographisms.*

I may then review my current conception of the three levels of cerebral elaboration with illustration drawn chiefly from the visual field where my own work thus far has been more detailed. It can, however, I think, be also applied to the auditory and to the epicritic fraction of the common spinal sensations.

The first level we may tentatively relate, on the structural side, to the calcarine cortex or area striata. On the functional side we may here assume a visual control of motion adequate for such simple motor responses as walking, reaching, grasping and avoidance reactions. In the calcarine cortex we find in the seventh layer—the lamina ganglionaris which corresponds with the fifth lamina of other sensory fields—a large stellate cell of motor type rather sparsely scattered. This is the solitary cell of Meynert and its axon may be traced backward in the occipital radiations away from the cortex and toward the lower motor centers. This I assume to represent a cortical motor cross over of the first order. Some such short cut between the visual centers and the motor

* Orton, Samuel T. "Wordblindness" in School Children. *Arch. of Neur. & Psych.*, XIV, 1925, November.

mechanisms would seem essential to permit of the extreme nicety of very rapid responses such as the placing of the feet in running over rough ground, the parrying of a fast blow, or the governing of the batter's swing to meet a pitched ball. This is not looked upon as an autonomous pathway, but rather as an adjuvant motor path which aids in adjustment of volitional movements initiated by the higher motor centers. In addition to this first level motor control function, this cortex probably also offers to consciousness, awareness of the external origin of sensations. We may tentatively consider this as the platform which differentiates for us between a current sensation and a mnemonic recall of past sensations since mind blind cases are aware of the external character of their sensations, although they do not understand their meaning.

The second structural level which is represented by the common occipital field or area parastriata we may tentatively relate to the second functional step. This adds to awareness of externality which results from activity at the first level, a limited degree of elaboration which results in the recognition of objects but does not carry it forward to the point of symbolic or conceptual association. The additive functions of these two lower levels is seen in clear relief in cases of developmental defect in the process of association at the third level, *i. e.*, strephosymbolia. The use of vision as a guide to motor responses and the use of pictorial material in the presence of a complete inability to read (*vide supra*) is very illustrative here, and the capacity to copy (not slavishly line for line but from print into script) but with no recognition of the meaning of the words so copied indicates, I think, a visuomotor pathway operating at this level, *i. e.*, a motor cross over of the second order. Again, I believe this to have only an adjuvant motor function, *i. e.*, to operate in conjunction with the higher motor centers and not as an autonomous control under usual conditions. Such a pathway might theoretically play a large part in the special gifts of the artist.

The third level we may relate structurally to the posterior association zone of Flechsig and functionally to the associative or conceptual level where linkage occurs between various sensory data of symbolic rank. Here our problem is complicated for us by the entrance for the first time of a striking difference between the functional importance of the two hemispheres. At both the first and

second level either hemisphere is adequate for normal function either operating alone or in common with its mate. At the third, however, the dominance of one hemisphere is indicated by the extensive functional losses which follow destructive lesions of the lead hemisphere and the practically complete lack of clinical symptoms after similar destruction in the non-dominant side. Such a contrast between the two sides is not demonstrable in structure, however, there is comparatively little difference anatomically between the two hemispheres and we are therefore led to the assumption that dominance is a physiological rather than an anatomical matter, *i. e.*, that the establishment of control in one hemisphere is a physiological habit. This third level of elaboration is the site of the controversy between the earlier views of an exact pigeonhole for each functional element entering into the associative process and the less rigid views as expressed by Marie and in Head's resurrection of Hughling's Jackson's tenets. The motor responses derived from this level constitute the symbolic expressive processes—speech, writing and sign language, and apparently there is a wealth of interesting and instructive material available to us here through the study of defects and deviations in the process of acquisition of these functions as exemplified in the special disabilities as well as in the study of the more complex results from acquired losses. I refer here to the special disabilities such as the developmental speech defects, special handicaps in writing, in spelling, etc.

Whether the irradiation of these three platforms is simultaneous or immediately successive cannot be answered with full assurance to-day, but the available anatomical data would seem to indicate the former. The visual fibres from the midbrain relay station (the pulvinar) insert in the calcarine area and as far as I am aware, no such pathway direct from the thalamus to either the second (common occipital) or the third (associative zone) has been demonstrated. Thus, I think we may look upon the process of elaboration of a visual sensation as entailing first an irradiation of the calcarine cortex which constitutes the conscious process of awareness of externality and from which adjuvant motor impulses may be derived for the very accurate adjustment of responses, provided that such responses be ordered from the higher "volitional" motor centers,

second this irradiation spreads by relay from the arrival platform to the common occipital field whose activity results in objective or pictorial recognition and from which again a motor cross over makes possible such reactions as copying without reading, etc., and third, another relay from this second level activates the third where symbolic association results and from which symbolic expression is controlled.

The concept of a motor cross over at the lower elaborative levels would seem to offer an hypothetical explanation of certain psychiatric symptoms of a bizarre but interesting type. Thus we might easily envisage echolalia as a response from the lower platforms of the auditory centers and echopraxia as a similar action from the lower levels of the visual mechanisms and possibly also cerea flexibilities from the kinæsthetic field. Such an interpretation infers a reduction of functional activity of the higher centers to permit such a resurgence and this of course is quite in harmony with the general picture of the catatonic syndrome. Again in the condition of command automatism which forms such a striking picture in hypnosis and occasionally in hysteria a lower pathway response seems applicable. Here the situation is, of course, a little more complex in that unlike echolalia and echopraxia there is not a simple mimicry of words heard or gestures seen, but the meaning of directions given is taken in enough to bring about the response commanded and yet there is complete lack of that variability of action patterns which we call volition and which characterizes the higher level responses.

If we be correct in the assumption that activity in the arrival platform determines conscious recognition of external origin and hence differentiates a sensation from a recall we may also theorize to some degree concerning hallucinosis. We are prone to think of impulses travelling always from receptor toward effector in the central nervous system as expressed in James' "law of forward direction" but there is evidence in places that a retrograde pathway is also a part of the usual mechanism. A structural illustration of this is to be found in the cerebellar cortex where the stellate cells whose bodies lie in the Purkinje belt spread their collecting net of dendrites in the molecular zone and send their axones backward against the general stream of travel into the granular zone. No such exact anatomical data are at hand for the cortex, but fibres

running in both directions between levels are demonstrable. As functional evidence of such retrograde activity, I think we may consider the volitional revival of objective memories of specific objects. Thus when we care to direct our thoughts to the recall of a certain familiar face or object we probably draw not on the symbolic or concept level, but on the second visual platform. Under normal circumstances such retrograde activation seems to be mutually inhibitory with activity of the arrival platform. Thus we do not experience a vivid mnemonic recall simultaneously with an active sensation and when we make an effort at clear recall of visual impressions, we are even apt to close our eyes to shut out current sensory stimuli. Such inhibition implies again a retrograde pathway from the second to the first platform. These considerations give us, I think, a hypothetical background for the envisagement of hallucinosis on a basis other than the usually accepted one of a discharge phenomenon of the peripheral mechanisms. This phenomenon might result from a lowered threshold toward retrograde stimulation in the arrival platforms as well as from an irritative or discharging process.

DISCUSSION.

DR. HARRY STACK SULLIVAN (Towson Md.).—I cannot discuss this paper, I must however, rise to ask a question. In dealing with mental illness one encounters frequently the phenomena of hallucinosis, particularly auditory hallucinosis, which I gathered from Dr. Orton's paper is well within the field of this study. Assuming, as I gather he does, these three levels of integration, I wonder if we are not driven, by considering these concepts, to the supposition that such a phenomena as that shown by schizophrenics in feeling panic, say, about threatened strangulation, hanging, or something of that kind as preliminary to the development of a desire actually to hang one's self. I would like to know if we are not required by this formulation to interpret this as a property of the primary zone or the first level of elaboration to which Dr. Orton has referred. I wonder, therefore, if he has found in his studies of the nervous system some unexpected support to Dr. Freud's theory that there are two varieties of instinct, the instinct of life and the instinct of death. This would be most unexpected to a mentalist, and I would particularly like to hear Dr. Orton say whether he thinks that in the primary zone of the nervous system there are impulses which make for death by hanging.

If not, then the hallucinatory fear of injury promonitory of an outcropping of self-destructive tendencies in the schizophrenic still holds for us a great problem; one to which an explanation of the phenomenon of

hallucination is in itself of but a very small contribution, one seemingly difficult to solve by a simple application of the three-level-of-elaboration hypothesis.

In other words, I should like to ask Dr. Orton if he feels that in this hypothesis of three levels of cortical elaboration he has come upon a formula which is or approximates a basic conception in explaining the more conspicuous deviations in thought and behavior which we encounter in mental disorders.

DR. WILLIAM MALAMUD (Foxborough, Mass.).—The very interesting work carried out by Dr. Orton is closely related to the work of Pavlov on the physiology of the central nervous system. Pavlov too has established the existence of a series of levels in the analysis of sensory stimuli, although he has not indicated any special number of levels. In his investigations on the analysis of optic stimuli, for instance, he found that an intact occipital lobe is necessary to develop and maintain conditioned reflexes that depend upon a very fine discrimination between different optic sensations. A series of extirpation of parts of this area gradually reduces the fineness of the discrimination and with it some conditioned reflexes that depend upon this. Finally, we come to a point where only very coarse differences between light and dark can be analyzed. He does not give any definite anatomical localization of these levels, preferring physiological concepts.

Pavlov, however, has up to recently restricted himself to the study of observed behavior in dogs, and has not attempted to give any definite theories in regard to human behavior. Whether or not the latter can be explained on a series of levels, whether thought processes can be reduced to certain simple anatomically localizable components is, to my mind, still a question.

DR. H. D. ALLEN, JR. (Milledgeville, Ga.).—I would like to ask Dr. Orton a question. I certainly enjoyed listening to everything he said, although it was very difficult for me to follow closely.

I had occasion to observe a case very casually of a boy I ran upon doing school work in the country. He was unable to do first grade work, yet I found him readily copying on a typewriter a long list of addresses, which he did two or three times from a list, and then immediately he could reproduce that list of addresses without referring to the list at all. He also could copy on the adding machine and then from memory a very elaborate payroll, yet he couldn't read anything out of a book. He couldn't read any of the addresses that he saw on the list from which he copied them, neither could he sign his name. I wonder if in this type of case there is a memory that is lower than cortical association.

DR. CLARENCE P. OBERNDORF (New York, N. Y.).—I would like to ask Dr. Orton if, in cases where there is no conception of a vision, or visual impression, he considers this defective functioning to be determined by organic changes at a certain portion of the brain. In a case which I have analyzed

for a very long while, the patient had absolutely no conceptual interpretation of vision but under analysis she gradually began to be able to appreciate what she actually saw. Certainly from the nature of the treatment, improvement would indicate there had been no organic change in the brain.

DR. GREGORY ZILBOORG (White Plains, N. Y.).—On the high or associative level do you conceive of definitely and differentiated set of anatomical structures, or layer or a system of layers which is not entirely differentiated, and therefore the higher elaborations might go through many and various pathways? In other words, do we deal here with a structural definiteness the way we find in the system of the spinal cord, or is it a rather vague and not entirely differentiated or integrated system?

DR. C. F. DIGHT (Minneapolis, Minn.).—I am not a member of the Association but may I make a statement and ask a question? Dr. Orton stated that different parts of the cerebral cortex had a distinctly different structure. I recall that Jelliffe and White in their large volume on the functional diseases of the nervous system state there are at least fifty different parts of the cerebral cortex which have a distinct, separate structure, and the mind is not a single faculty, but consists of a large number of distinct and separate faculties, implying that each distinct mental faculty has its own faculty brain center through which it operates and manifests itself.

If that center is a good center in structure, the faculty that acts through it will be efficient. If the center is weak, defective in structure, the particular faculty that acts through it will be inefficient.

I would ask Dr. Orton if his belief is in line with that statement of Jelliffe and White.

DR. L. B. ALFORD (St. Louis, Mo.).—I also would like to ask a question. I would like to ask Dr. Orton, if it is in order, how he would correlate this work of his with the psychic emotional disturbances in thalamic lesions where you get the compulsive laughing and crying without any great intellectual disturbance.

I would also like to ask him his views on the differences between the two hemispheres; mental functions vary considerably between the two hemispheres. Dandy has said he could take out one hemisphere (the right in left handed people) practically without any disturbance in the mental function. I also have noticed in brain tumors where practically all one hemisphere is destroyed, on the right side, there is very little disturbance in the mental function.

PRESIDENT MEYER.—Is there any further discussion or question? It is undoubtedly rather difficult to keep to exactly that which Dr. Orton wants us to discuss, and I am afraid he has left himself open to a good many questions he did not intend to stir up, or at any rate did not intend to put himself under obligation to answer. Perhaps I should reserve this for personal conversation, but I should like to ask him just in what sense he is limiting his concept of integration; then in what way he feels that

some of us, I might be one of the group, have obscured things or belittled the possibilities of correlation of things.

With regard to that I should like to emphasize the fact that some of us who are intensely interested in the neurological study and who have tried to push as far as possible the integrations that are differentiable from a neurological lesion point of view, have wanted to get a correlation between lesions and, for instance, basic behavior disturbances. But we come to points where we can say we can go so far and no further on account of lack of facts. Therefore we limit a great deal of our discussion absolutely to the functional level within which we have the facts, and leave the structural interpretations perhaps to a theoretical discussion.

I should like to ask Dr. Orton whether in these studies which have very justly brought to him a great deal of fame and admiration on the part of all of us, organic structural data have actually come up and have become utilizable. If there are not such new structural data, my own inclination would be to remain definitely on the functional interpretative level. I should be inclined to eliminate supposedly structural correlations unless they are definitely identified within the system of what we study as aphasia, agnosia, and apraxia, and to cultivate a field of functional consideration in which we do not presume as yet to deal with specific "centers" and circumscribed parts of the cortex.

Is there any further discussion of question? If not, I should like to ask Dr. Orton to close.

DR. SAMUEL T. ORTON (New York City).—I am afraid, as Dr. Meyer has hinted to you, that I have stirred up many more questions than I am able to answer.

In reply to the remarks of Drs. Sullivan and Malamud, I have attempted to go only as far as the facts seemed to warrant a reasonably direct conclusion. Trying to include an impulse to hang one's self with the ability to read seems to me too far drawn. There are certain phases of behavior that seem to me approachable by the type of analysis here given but we cannot yet, of course, hope to extend this to include the wide range of behavior disorders which have been brought into the discussion.

With regard to Dr. Allen's case, I am quite sure that it is a characteristic case of strephosymbolia or reading disability.

Dr. Oberndorf has brought up the question of the so-called visualizing type of individual. Certainly none of the two hundred cases of strephosymbolia which I have so far studied would be considered to be of the visualizing type, but in many of these children in whom retraining has been attempted we have been able to demonstrate a striking improvement in their ability to understand words by way of the visual pathway. It seems to me that the concept of an inherent visual or auditory type is a dangerous one in that it infers a fixed reaction pattern which cannot be modified by training. The natural tendency with a child who learns more readily by ear is to teach him chiefly by ear. I think our ambition with such a child

should be to increase the facility of the visual pathway in order to give him a better rounded capacity for implantation.

Dr. Zilboorg's question raises the old problem of an exact pigeon hole for each small function in the cerebral cortex which has been very thoroughly challenged by Head and by Marie. I think we may say that while today we can recognize three distinct levels of elaboration the highest of which forms the language zone, there is no very good evidence of division of function within the third or language level. The response to training in the case of the reading disabilities gives evidence that we are dealing here with a physiological rather than a structural problem.

The question regarding the thalamic lesions I feel does not fall within the scope of the material here reported which deals with cortical integration only.

With regard to the hemispheric relations, I feel that the relations between the two hemispheres are very largely responsible for all of the reading disabilities, for the majority of stutterers and for many cases of congenital aphasia.

Dr. Meyer's question with regard to integration brings out clearly that we must differentiate between degrees of integration at different levels. A complex reaction pattern such as the scratch reflex built out of simpler units by the spinal cord is certainly integration and similarly we can observe examples of integration at various higher levels. Consequently we must specify the level of the integration at which we are dealing.

I have no striking new organic structural data to offer but there is a rather wide range of new clinical observations largely of my own series of cases of functional disorder which seem to bear very directly on this point.

I might also note that Dr. Meyer in raising his question has called up aphasia, agnosia, and apraxia, all three of which are expressions of the third level and therefore not applicable to the localizing inferences which I have drawn of the two lower levels.

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THE INFLUENCE OF MODERN PSYCHOPATHOLOGY IN STATE HOSPITAL PRACTICE.*

By WILLIAM C. GARVIN, M. D.,

Medical Superintendent, Binghamton State Hospital, Binghamton, N. Y.

Great advances have been made in the study, understanding and treatment of the mentally afflicted in state hospitals in recent years. A marked impetus was given to the study of mental disorders by the World War, when, for the first time, the medical profession and the public became cognizant of the fact that not only a good physique but also a stable mind was essential for a soldier to carry on under the strain of modern warfare. Psychiatry from this time on has progressed from the field of state hospital practice to concern itself with manifold avenues of human activity.

From the study of the cases in our hospitals we have learned much, the gist of which is the knowledge that many of the breaks in adaptation, which occasion neurotic or psychotic syndromes later in life, are due to the development, for one reason or another, of faulty habits of thinking and acting laid down early in life.

I was fortunate in the early years of my work at the Manhattan State Hospital to have the advantage of associating with Dr. Adolf Meyer. To him is due, more than any other psychiatrist, the credit for introducing the Kraepelinian psychiatry in America. Not content with Kraepelin's formulation of psychotic syndromes on the basis of etiology, course and outcome, he sought for more dynamic etiological causes and emphasized the importance of the biological study of the patient in the light of his total life's reactions.

Kraepelin's contributions to psychiatry were invaluable, but his explanation of the causes of dementia præcox as probably being due to an organic or toxic brain condition was satisfying only to those interested in descriptive, formulatory and nosological psychiatry. His nihilistic viewpoint as to the etiology of this heterogeneous group of cases, which comprise so large a proportion of patients in our hospitals, was reflected in the meager attempts at investigating

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

the presenting symptoms and behavior on a psychological basis and in a restriction of endeavor to do something for the patient's mental reconstruction.

Dr. Meyer rescued psychiatry from its former haphazard methods of psychiatric examination, and instituted a systematic scheme of mental and physical examination, including the securing of all possible anamnestic data concerning the patient. All laboratory or other procedures indicated were to be performed and form an integral part of the case history. He insisted on one recording facts, not surmises or impressions. After all the available facts were at hand, a summary was to be written, covering the outstanding factors in the case history, diagnostic conclusions drawn and therapeutic suggestions noted down. He further insisted upon accurate verbatim records of the patient's productions, together with an account of the patient's delusions and hallucinations in the patient's own words. To this was to be added an account of the patient's mood, behavior, memory and intellectual tests, degree of insight, etc. This scientific method of recording facts instead of using descriptive terms and noting impressions was a great advance over pre-existing procedures.

Dr. Meyer also instituted the holding of staff conferences, at which the patient was presented, interrogated, and the result of the examination taken down by a stenographer and typed in the case history. During the patient's residence in the hospital, continued notes on his mental and physical condition were made from time to time. When a patient had recovered, or had sufficiently improved to leave the hospital, the physician in charge was required to bring the case history up to date, prepare a summary of same, which he presented at the parole staff conference. Every effort was made to unearth the etiological factors, which were discussed with the patient, in order that he might understand the dynamics of the situation, with the view of preventing subsequent breakdowns.

Dr. Meyer, moreover, secured an increase in the number of physicians in our hospitals, and stimulated the interest of the medical staff in securing autopsies, so that any pathological condition might be checked up, and also to provide necropsy material for laboratory study. He instituted the practice of giving courses in the anatomy of the central nervous system and in psychiatry for the

various physicians in the New York State Hospital service, and placed the work of the Psychiatric Institute on a truly scientific basis. He also occupied an important place in organizing the National Committee for Mental Hygiene, and advocated the establishment of psychiatric units in connection with general hospitals and medical schools.

In the *Psychological Bulletin*, 1908, Vol. 5, page 257, in discussing dementia præcox, Dr. Meyer contended that it was possible to formulate the main facts in most cases in terms of a natural law of cause and effect, using the psycho-biological material at hand, better than a dogmatic assumption of a specific but hypothetical unitary toxic principle. In this fashion he envisaged the later psychological conception of this disorder.

Dr. Meyer early recognized the value of psychiatric social service for paroled patients and also the social and economic environmental implications involved in etiological constellations, and, therefore, utilized the services of social workers in amplifying the anamnestic data. He heartily supported the establishment of out-patient and mental hygiene clinics, not only for paroled patients but also to serve community needs. He was also active in introducing amusements, recreations and work as a therapeutic aid in the care of his patients. The breaking through our hospital walls and concerning ourselves with the individual in his social and environmental setting has led to the development of a new branch of psychiatry, viz., social psychiatry, a notable advance in our work.

I have dwelt at length, perhaps, on some of the work performed by Dr. Meyer, but, realizing as I do his indefatigable industry, the steadfastness of purpose, his far-reaching vision, the high standards set for himself and his pupils, and the oppositions which he overcame, I cannot let this opportunity pass without placing the credit for advancing psychiatry in this country where it belongs, viz., in the hands of Dr. Adolf Meyer.

The visit of Freud, Jung and Ferenczi, to give their series of lectures at Clark University in 1909, stimulated interest in the Freudian psychology in America. The translation of Jung's "Psychology of Dementia Præcox" into English, made available to psychiatrists unable to read German this important work based upon Freudian conceptions.

Dr. August Hoch, a stimulating personality, who succeeded Dr. Meyer at the Psychiatric Institute, became actively interested in the new psychology, and at first had hopes of being able to use the psychoanalytic method of investigation and interpretation in the reconstruction of cases of dementia præcox. He devoted himself to the intensive study of the trend reactions in his patients; but, unfortunately, the looked-for therapeutic results did not take place. However, through his increased knowledge of the dynamics of mental maladjustments, he was able to establish a closer "transference," and treat his patients in a more understanding fashion. His studies of the personalities of his cases of manic-depressive insanity and dementia præcox were of great value. Another important contribution was his work on "The Benign Stupors," published after his untimely death, by MacCurdy.

Dr. Hoch was succeeded at the Institute by Dr. George H. Kirby, a conservative and painstaking psychiatrist, who possessed a remarkable faculty for summarizing, in a few words, the salient points in a given psychotic case. This is rather a phenomenal quality in a psychiatrist, who, as a rule, are rather prolix. To these psychiatrists I am indebted for laying down the foundations of any psychiatric knowledge I possess.

The interest in the new psychology was especially furthered by the works and translations of various psychiatrists interested in the psychoanalytic movement. In the study of dementia præcox, I found Jung's work on the subject particularly valuable. Every student of psychiatry should also read the case histories in Kempf's "Psychopathology." Heretofore our conception of this disorder was panoramic in character. We saw the picture, but we did not understand the cryptic utterances, the symbolic expressions, nor the bizarre behavior. In the light of the new psychology much of the meaningless behavior can be translated into understandable language.

Other contributions to the newer conceptions in one form or another, were White, Jelliffe, Jones, Brill, Bleuler, MacCurdy, Campbell, Frink, Abraham, Adler, Rank, Ferenczi, Kempf, Thom, Healy, Oberndorf, Schilder, and many others. In the field of social and industrial psychiatry, Southard made important contributions.

Modern psychopathology lays stress on the importance of the instinctive life as compared with the intellectual life in directing

our conduct. Moreover, it emphasized the dominance of the unconscious mind in our thinking and doing. While Charcot, Janet, Prince, and others recognized its importance in the neuroses, it remained for Freud and his pupils to give it its true dynamic value, not only in abnormal mental states, but also in normal processes of thinking and acting. No doubt many of the Freudian conceptions will be altered by time and further experience, but to me they offer the best explanation of the genesis of the functional psychoses available at the present time.

I can recall the time when a discussion of the Freudian psychology at the Academy of Medicine, New York City, Jung being the speaker of the evening, took on such an embittered tone, that one would have supposed they were listening to a debate between an ardent fundamentalist and an evolutionist. Nor has our own society in the past been free from such acrimonious disputations. Time tempers all things, even the emotional tone of contending psychiatrists. Even to-day the medical fraternity as a whole has but little conception of the dynamics of human behavior, and, unfortunately, appear uninterested in such matters. The interest of the laity, from my experience, far exceeds that of the average medical practitioner. That a patient with heart disease may react more or less disastrously with his psyche to that condition, and perhaps influence the prognosis, or that a patient may complain of various gastro-intestinal disturbances for which there is no local functional or pathological foundation, while the actual cause of his difficulty is psychical, but has been transferred into the physical sphere, seems as yet to have scarcely penetrated the mind of the physician unacquainted with mental mechanisms.

An analytic and interpretive psychiatry has been the means of injecting new interest in the study of the patients in our hospitals. What to us was formerly a broken down piece of human machinery, regarding which we made copious notations without appreciating the meaning thereof, often becomes understandable in the light of the new psychology. We are beginning to gain a glimpse behind the screen of disordered behavior, and to realize that these things are not generated in a haphazard fashion. We now know that they are psychically determined and are the patient's method of settling his instinctive conflicts and strivings, regres-

sive, crude, bizarre and pernicious though they may be. Through this new knowledge we are in a position to lay aside our former nihilistic attitude as to eventual improvement or recovery, and to attempt therapeutic efforts in a more understanding manner.

A knowledge of the principles of modern psychopathology is of value to the psychiatrist, for use in solving his own personal problems and for the understanding of human behavior in general. While its therapeutic value in state hospital practice is restricted, it can be used with advantage in certain cases of the more benign psychoses after recovery takes place. This will enable the patient to gain an appreciation of the genesis of his mental difficulties, and possibly prevent future attacks. It may, moreover, be utilized, within certain limits, in selected cases of dementia præcox, especially those who are intelligent and coöperative. A considerable degree of discrimination and judgment, however, must be exercised in selecting such cases, otherwise an aggravation of the patient's symptoms may be occasioned.

The contributions of Freud and his school have not been fully appreciated, owing to the opposition of many, to the emphasis which they lay on the sex instinct in activating human conduct. We are not compelled to believe all that any philosopher, psychiatrist, psychologist, or psychopathologist teaches. There may be an honest difference of opinion between deductions made by observers from the same facts. But this is no reason for rejecting conclusions or formulations in toto, especially when bias, on an emotional basis, is often present. As great a psychologist as William McDougall, while not accepting many of Freud's teachings, remarks, in his introduction to his "Outline of Normal Psychology," "I believe that Prof. Freud has done more for the advancement of psychology than any student since Aristotle." Whether or no we go as far as Freud in his evaluation of the importance of the sexual instinct, does not lessen the fact that the Freudians have, on the whole, vivified normal and abnormal psychology with dynamic conceptions not hitherto available.

Frequent discussions have been held in this society, with reference to the importance of focal infections causing organic brain changes, producing, for example, dementia præcox. Cotton, I think, claims entirely too much on this score, but his work has

resulted in one good thing: it has drawn the attention of the public and our legislative bodies to the necessity of providing proper medical, surgical and laboratory facilities for the diagnosis and treatment of physical conditions among our patients. I believe that were it not for his contentions and the publicity he has given the same, we would all have had a great deal of difficulty in securing funds to establish diagnostic clinics and purchase needed modern medical and surgical equipment.

Modern psychiatry has broadened immensely in recent years. It no longer concerns itself exclusively with patients in mental hospitals. It now covers the broad field of mental hygiene, and has to do with the individual from infancy to old age. It especially concerns itself with the mental hygiene of childhood, the "Golden period for mental hygiene," as Dr. William A. White terms it. This is the time when pattern reactions are etched, along the grooves of which our energetic conscious and unconscious mental impresses flow, directing our destinies for good or for evil. Of importance in this formative period are the influences of the home, family, school, church, companions, opportunities for social and physical outlets, and the like. A study of many of our psychotic and neurotic cases has revealed to us many of the inhibitory and pernicious factors at work during childhood or adolescence, which have mentally crippled the future adult in this formative period and laid the foundations of neurotic or psychotic disorders.

The new psychology has also occupied itself with the study of myths, folk-lore, every-day life, poetry, drama, literature, biographies of famous individuals, the pre-school child, child guidance, habit disorders in children, juvenile delinquency, crime, social misfits, social unrest, educational matters, the individual in the school, college, workshop, factory, and especially in the broad field of mental hygiene. There is yet much to learn in the field of mental hygiene. One hears a lot of glib patter on mental hygiene topics, and I wonder how much of it is based upon actual facts.

There has been a tendency among neurologists and psychiatrists in private practice to criticize the lack of progressive work among our state hospital physicians. I will answer this criticism by saying that in nearly every hospital with which I am acquainted, there are a number of young, energetic physicians,

actively interested in modern psychopathology and research, who are endeavoring by all possible means to reveal the origin and to untangle and decipher the tangled skein of distorted thinking which enslaves our patients and binds them captive.

It seems to me that a preparatory period of training in a mental hospital would be desirable for all physicians proposing to engage in private psychiatric or psychoanalytic practice, in the clinic work carried on by the National Committee for Mental Hygiene, or similar agencies. Superintendents of mental hospitals should, therefore, display an encouraging, sympathetic attitude toward these young men who are interested in the newer advancements in our field of endeavor.

As we grow older our minds are not as receptive to new things as formerly, and we tend to live in the past. The world makes progress from day to day and from year to year, so let us endeavor to keep step with it, and lend our advice and encouragement to those young physicians under us, who are the progressives of to-day and of the future.

ASSOCIATION OF PSYCHOSES WITH THE PUERPERIUM.*

By ELEANORA B. SAUNDERS, M. D.,
Sheppard and Enoch Pratt Hospital, Towson, Md.

While childbirth may be regarded as a normal, biological function, its incidence in certain types of woman may be accompanied by great emotional conflict and stress quite apart from the hazards of infection and general strain. The problem of adjustment to marriage and to childbearing and the individual attitude of woman to the rôle of wife and mother may be brought to a serious test culminating in various psychoses. A psychosis in the puerperal period may be an isolated experience in the life of a woman; or on the other hand there may be repeated attacks of mental illness with several children, or there may be psychoses at other times. Psychotic complication of childbirth has been seen in mother and daughter. Depressive reactions with feelings of guilt may follow induced abortions and in the disappointment resulting from miscarriage whether due to acute infectious diseases as influenza and pneumonia or to other non-mental causes less likely to have a share in mental affections.

Interest in the association of psychoses and the puerperal period suggested this study which is based on observations made during the last eight years in the cases of all women admitted to the Sheppard and Enoch Pratt Hospital, who developed mental illness coincident to childbirth. In the study only those patients who gave history of symptoms of psychosis before the end of the first month after delivery are included. In several of these cases members of the family noticed prior to or just following the delivery, a slight alteration in personality or emotional set. But in all of these cases here considered a florid psychotic state developed during the first month after childbirth.

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

I take this opportunity to express gratitude to Dr. Adolf Meyer for the help and inspiration he has given me in this as well as in other clinical studies.

We may find the tendency to doubts and fears in the initial period of these mental disorders quite similar to the misgivings of many a young mother who does not develop mental illness and we recognize from the study of psychoses of this period that the preoccupations of the early days of the puerperium may color or direct the character of the content during the process of formation of the psychoses. They may make for predominant content disorders later. In the development of the illness there may be distortions of ideas about the child which bear frequently on secret wishes in relation to it. The presence of the child, the possible disappointment in its sex, its care to which she may react with obsessional over-compensation, the thought of the infringements upon the mother's career may appear sufficient to break down an already somewhat fragile adjustment. The conflict may be expressed in amnesia for its birth, in the annulment of its existence, and in delusions of the child's being dead or killed. There may be conflict in regard to her adjustment to her husband, expressions of doubt of her marriage being legal—seen specially where there are marked religious differences—ideas of the child's being illegitimate, of the husband not being its father and ideas of sin. The mother may feel injured or mutilated and the sex relations may have suffered in the last months and there are doubts of their resumption due to the fear of another pregnancy. Narcissistic loss of beauty, jealousy of the husband with nurse or sister are subjects of preoccupation. Then women who have led sheltered lives may find difficulty in breaking away from close family ties and from indulgent parents. The persistence of the "eternal child in herself" may interfere with complete mature satisfaction with her baby. It still seems to be a somewhat open question whether we deal in some of these cases with casual influences exercised by family and environment or whether we deal with something strictly hereditary, that is, as the outcome of bodily inheritance or as environmental in the sense of undesirable influences in early life.

The element of personal development is interesting. Descriptive terms giving the outstanding characteristics show, in this study as in others, the type of personality upon which a psychosis is engrafted has much to do with the ability for later adjustment. The early developmental traits of spoiled only children who

remain dependent on the family may make adjustment to adult responsibilities of home-making and care of children too great a burden. All kinds of personalities, however, occur in the group of cases here considered, ranging between types which are described as frank and efficient with qualities of leadership, and are characterized by resourcefulness on the one side; and those who are markedly reserved, shut-in, and rigid on the other. The more adaptable, easy types give greater promise of future healthy states than those with marked warping of the personality.

It appears to be an accepted fact that early environment and childhood experiences do much to affect the ability for adjustment to the sex life in later years. The influence of the father is rather frequent in those whose parents were alcoholic or psychotic. The possibility of inheritance or constitutional development may play a part, but the childhood experiences consequent upon the abnormality of the father either in excessive tenderness or excessive brutality may make it difficult for the daughter to make an adjustment to adult love relations with her husband. Attachments to the mother with hatred of the father and a sister attachment at a later stage were recorded making for tendencies to erotic interests in their own rather than in the opposite sex. Domestic friction or separation of parents apparently increases the likelihood of fixation on the remaining parent with feelings of guilt in regard to the difference between them, and a resistance to the marital relations in later life. Feelings of guilt in regard to early childhood experiences of a solitary nature or those with brothers or associates were influences felt by some as causes for inhibition. Excessive curiosity associated in the minds of patients arising out of early physical or fanciful arousal was reported in cases who as children had unusual phantasies as to what sex relations are and found the actual experience disappointing. There were at puberty reactions of invalidism, seclusiveness, shyness, and severe rectal pain supposed to be psychogenic in nature reported by patients referable to arousal of sex feelings at an early age without adequate balancing factors or associated with early physical arousal frustraneous in nature. In these there were reports of close attachment, if not attempted sex relations in childhood with the brother.

The following is a short case abstract which will illustrate difficulty of adjustment to marriage and to childbearing shown in the content of a very accessible patient with unusually rich material referable to early life experiences:

CASE 3.—C. M. Repeated depressions bearing on her marriage and the birth of children in a submissive type with many feelings of incompetence. She received sex instruction from girls at school, was dizzy and vomited with the menstrual onset. There was much conflict about masturbation and childhood sex experiences with the brother with subsequent incestuous fancies. The engagement upset her even though she loved her fiancé. She dreaded the marriage, wept during the ceremony, and locked herself in her room immediately afterwards. She thought sex relations were terrible and with all four deliveries there were depressive reactions with jealousy of the husband, feelings of being neglected by him and delusions of his inconstancy. She said she had no love for her husband, was irritated by the care of the children and said that something had come between her and them. With every child there was an episode of depression with guilt and self-censure accompanied by delusions concerning the husband and children.

Religious differences, conflict over use of contraceptives, desertion by mate, and deviations of sex satisfactions demanded by the partner (cunnilingus) are also mentioned by patients as reasons why the child proved an additional precipitating factor in the illness. Attitude of her own mother may affect the patient's adjustment in later life, and result in repudiation of motherhood as well as its antithesis—strong identification with the mother and longing for children. Reluctance to childbearing reported by patients may be referable to real or fancied experiences in childhood, which build up an incest barrier to full acceptance of marriage and a fear of possible danger with an unknown experience of childbirth.

Only a few of our cases showed somatic disorders. Study of blood pressure after admission to the hospital revealed many interesting readings. The systolic ranged from 160 to 110 and the diastolic from 95 to 60. In none of these cases was there any evidence of uremia. Only four of the number had puerperal sepsis demonstrated in elevation of temperature and leukocytosis.

The following case illustrates the simultaneous existence of grave physical and psychogenic factors:

CASE 6.—L. K. A panic state developed within twenty-four hours in a young woman followed by evidence of infection which cleared up while the mental symptoms developed into a chronic dilapidation of a hebephrenic

character. The patient was the oldest daughter of a dominant father and an eccentric mother. She had a close attachment to her sister; was married at twenty to a man lacking in aggressiveness. Soon after the birth of the first child she was afraid that it had been injured by the nurse. She rapidly developed fears for the safety of her favorite sister and delusions that the baby had been "morgued." Distortions of ideas about the baby and the sister being in a morgue remained throughout the acute phase of mental illness. Infection at first pelvic soon became evident in abscess formations in series in different parts of her body but ended in recovery after a few weeks. The mental symptoms, acute for a period of eight or nine months, gradually drifted into greater dilapidation and now appear more chronic in nature.

Surgical intervention at childbirth was rare. In two a forceps delivery without infection, in one a child dead born, and in another a Cæsarean section without physical sequelæ. While there were variations in stature, deposition of fat, hair growth and the disturbance of the skin pigment and the existence of non-malignant enlargements of the thyroid, there were no evidences of frank syndromes.

The young mother, somewhat alarmed by the experience of childbirth, may have doubts about possible retentions, about the milk supply, and about elevation of temperature in herself. Thus not only a blatant septicemia may serve as an aggravating factor of perplexity but minor physical ills may be the cause of alarm and panic.

As in other types of psychoses there are mixtures of clinical manifestations. Manic states with special features or delirious conditions which crystallize into a paranoid hangover. In impure depressions there may be projections, suspicions and delusions regarding the death of the child. But throughout there is a predominant tendency toward (1) the affective disorders with depressive moods upon which ideas of self-censure and guilt are built or those cases with elation as a basis on the one hand; and (2) a shifting into more frankly outspoken feelings of being influenced constituting that group with a greater perplexity, negativism and projections of the schizophrenic on the other.

The following are short case reports to illustrate the different clinical groupings or trend reactions which developed in various types of personality as a reaction to stress at the time of the puerperium.

CASE 1.—M. E. A depression with constant reiteration of loss of capacity of thought, and of loss of beauty in an egotistical, somewhat romantic type of woman, who was married at thirty-eight to a man younger than herself, after a long successful professional career, during which time she was devoted to her father. With marriage she was sexually frigid and with pregnancy was somewhat uneasy about her safety in childbirth. After the birth of the child which necessitated a monotonous routine in a small apartment, there was much time for brooding about the alteration in her life plan. She was overzealous in the care of the child devoting all her time to it to the exclusion of husband and family. She became depressed, deplored her inability to "go on with things" and thought she had "failed in her ideal." She consulted many physicians, spent short periods in several hospitals where there was a tendency to repetition of loss of capacity and of regret for her failure.

CASE 2.—J. P. The onset of a florid manic attack within a week after the birth of a child in a patient whose father had a mild psychosis and whose mother was a very dominant type. She was married to a man devoted to his parents and unable to make an economic success without their assistance. The patient was ambitious and aggressive in social interests. With the death of the first child she was disappointed but with the birth of her second she became elated and overactive within a week after delivery. In the beginning she talked of making money, of the home situation and of the hampering influence of her husband's position in relation to his family. Soon she thought her baby had been thrown from the hospital window and that it had been killed. She disowned her husband and spoke of herself as the wife of the obstetrician. There were swings of elation and depression over a period of five months ending in recovery.

CASE 4.—O. B. A paranoid reaction which developed into prolonged illness in an idealistic artistic woman, the youngest child, who had difficulty in emancipating herself from her family. There was a tendency to religious interests and to mystical notions. She was married to an efficient lawyer, staid in type, older than herself. She did not want children but tried to measure up to her husband's expectations. With the birth of the child she found its care a burden. There was sudden onset of disturbance in which she felt that she had been called to bear "a Christ Child," but later said that she had been ordered to kill it. There were intense hatred of the husband and an omnipotent attitude with increasing unreasoning childish impulsiveness. She vacillated between self-censure and projection of responsibility to others and became religious or abstract in her talk of being dead or born again. There came a paranoid development and chronic illness.

CASE 5.—B. M. A depressive episode in a patient with a tendency to obsessive fears since childhood. Her father had a depression in late life and her favorite brother died in an acute excitement associated with influenza. The patient always "a home girl" developed in childhood a fear of contact with soft, wet moving things such as young birds or chickens and frogs. With

marriage she was frigid but wished children. There was an element of fear and uncertainty about her safety during pregnancy, but with its birth this was transferred to the child. While in the hospital she was uneasy and wished to see it often to be sure that her baby was safe. She thought she could not care for it and there were increasing feelings of inadequacy. She was depressed, wept, could not sleep, was anxious and fearful and became more helpless in the care of the infant. Upon its death, due to congenital heart disease, there were feelings of neglect added to grief and self-censure. She had an obsessional fear that she had given it a migraine tablet and repeated incessantly "I killed that baby." There were preoccupations of guilt, brooding over the death of the baby, loss of interest and attempts at suicide, ending in recovery from depression and improvement of obsessive symptoms.

While the cases used as a basis for this report show individual factors of content and of the course or development, the clinical types of psychoses are not different from similar cases of the same nature in other periods of life. In the more mature there seems to be a greater predisposition to regret, remorse and grief on account of inability to cope with the added burden. In the immature there is a tendency to flight from the real situation through the development of childish behavior. Dr. White has commented on the marked infantile characteristics of the content of many of these women. While there are often complicating features which indicate impure types, the trend reaction in our group of cases is fairly well outlined. Twenty-seven of the cases showed an affective type of reaction—thirty-nine were schizophrenic in nature. A smaller group comprised those cases of personality deviations and of those with organic or infective exhaustion features. The majority of those in my group associated with exhaustive toxic element presented a mechanism of schizophrenic behavior. Those with marked personality eccentricity may develop swings of depression and elation or they may build up a structure of projections and hostility when stress is too great. In the affective group there were more depressive than manic reactions but several had the history of both phases in different attacks.

The span of ages, 20 to 43, gives the greater number in the younger, productive years, and probably supports the idea that the youthful mother is more successful in adjustment to marriage relations. This, however, may be cause and effect. She may marry young because her adjustment to sex is easy. The woman who

marries late may have had resistance which was solved by emancipation in a later period of life. Three of the primiparae were forty-three years old. Another after an interval of twenty years had a child at forty-four. Within a week after its birth she spoke of its starving and of the likelihood of its death. These doubts were extended to the two grown sons and to herself. A catatonic illness of months' duration gradually crystallized into a chronic paranoid condition. A primipara of forty-three, developed depression and worry after the birth of her child on account of conflict about prenuptial sex relations. Another at forty after having had eleven children was again pregnant. During this gestation her eldest son to whom she was devoted developed pneumonia and died. With the birth of the twelfth child soon after, she spoke of the tempter and of a fear of being buried alive as the result of her sexual excesses.

While the association of mental illness with the birth of the first child was reported in the greater number of cases, there were psychoses with the second, third and fourth children. Incidents were had with the fifth, sixth, ninth, and twelfth as well. Not all pregnancies were accompanied by emotional upset but there were several who had attacks with each delivery. Then too there were in certain cases earlier uncomplicated pregnancies and previous mental illnesses not associated with the puerperal period. In several patients in my group there were repetitions of psychoses of similar nature associated with the birth of children in whom the attacks were never free of puerperal complication.

A study of the mode of onset brought out interesting observations. In many of these cases subsequent reports revealed the fact that in the first few hours emotional symptoms were apparent, but they were accepted at that time as reactions to the situation. With the development into frank psychotic behavior, the beginning of the illness was traced back to this initial reaction. Others when seen in retrospect appear to have developed almost immediately. One was excited at delivery and did not become quiet until four months later, at which time she lapsed into a depressive attitude of self-censure and "remorse for her behavior" during the period of florid excitement.

Duration of illness is not definitely altered by association with the puerperal period. The acute more recoverable types or those

with a greater ability to adjust themselves to life problems make quicker recoveries. But there are those who do not offer a probability of adjustment to full adult responsibility. Those now under care at Sheppard and Enoch Pratt Hospital are in most instances recent admissions and of short duration. Those transferred to other hospitals range in duration from two to seventeen years. Two of these, sixteen and seventeen years respectively, were of long standing when they first entered a hospital for observation and treatment. Those at home with poor adjustment range in duration of frank mental illness from four days to eleven years. Duration of illness of those who recovered was from one to ten months.

Review of the outcome shows that there are seven still under care in the hospital of whom three are convalescent and about to be discharged. Eighteen who have been transferred to other hospitals do not offer prospect of recovery to the extent that they may live out of the protected environment. Three died, one of septic infection with initial onset in the kidney. The other two, apparently in good health at the time of delivery, were, in the beginning of the illness, regarded as psychogenic (depression) in nature, but the symptoms took on an organic-like picture. One of these died within a month, the other after several months' illness in which she presented a Parkinson-like syndrome. Nine returned to their families but are not as competent to take their places as before. Those who know them best recognize the compromise. Thirty-eight of the cases now at home made a successful adjustment and have had follow-up care for a period of time ranging from eight years to six months. The greater number of this group showed hopeful features from the onset, and had a comparatively short illness, ending in a successful adjustment to the home environment.

While the puerperal state does not produce any special type of psychosis it is a new or specific experience with new chances for mal-adaptation. Associated with it are factors and features which affect the patient's inner adjustment to a new situation or a specific recurrent situation, which must be met with surrender, or success in an additional or hitherto unknown task. Efforts at prevention or alleviation may be enhanced by a closer analysis of the individual factors in each case making for mal-adaptation and by

attention to the stresses of the new or specific experience which served as a precipitating factor.

The element of prognosis in these cases may more profitably be associated with individual factors as are found in similar types of psychoses in other epochs of life, and not with the suggestion that all patients recover when the illness is at childbirth; or with the inference that no case at this period offers hope of recovery.

The survey of the seventy-five cases of psychoses associated with the puerperium gave interesting features resulting from the coincidence:

(1) In many of the cases there were in the onset expressions of conflict about the infant and its significance.

(2) The study does not give evidence of definite etiology in toxemia or exhaustion and there is little to prove association with endocrine disturbances.

(3) It appears more profitable to refer the psychosis of this epoch of life mainly to psychogenic factors, and of these the most important seems to be those factors which make for sexual maladaptation or maladjustment.

(4) It has been generally accepted that there is nothing distinctive which differentiates psychoses of the puerperium from corresponding types of psychoses at other epochs in life. Observations made upon the cases selected in this study do not indicate any types of reaction or prognosis which differentiate the psychoses of the puerperium from psychoses not associated with childbirth, except in so far as to affirm that in cases of women whose adaptation to the marital relations is satisfactory, childbirth is not likely to be found a precipitating factor.

DISCUSSION.

PRESIDENT MEYER.—This very interesting study is now open for discussion. Are there any questions or statements? The paper interested me particularly because of the fact that it seems to represent that sound pluralism with which I feel we have to attack the big outbursts and events that we meet with in psychiatry, and it focuses from the very outset on things that are particular to the puerperium. Whereas in the days when sepsis was not as simple as it may be made at present, there was, of course, a great predominance of infectious, toxic, and perhaps exhaustive reactions, we now see a good many outbreaks during the puerperium that are like outbreaks in other periods, in

other circumstances of life. But what interests us especially is what is specific to the puerperium. I think Dr. Saunders has focused from the very outset on that point, and, in that respect, I feel has rendered us a very definite service.

DR. GREGORY ZILBOORG (White Plains, N. Y.).—I should like to ask what was the diagnosis, the clinical diagnosis of the woman who gave a history of rectal pains apparently of psychogenic origin during her adolescence. Also why was the period of one month post-partum selected as the criterion for the group.

Also, in the case of the severe attachment to the mother in the family, were the psychoses predominantly affective in origin or schizophrenic. The last question; how frequent is a history of frigidity amongst the women who develop psychoses?

DR. HAMILL.—I should like to ask Dr. Saunders if she ran across sort of folk belief in the idea that pregnancy or birth did anything to the element of passion, and whether there was a belief it would be a curative in the struggle with passion?

DR. CHARLES A. BARAGER (Brandon, Manitoba).—I should like to ask if the prognoses in these cases is any better than it would be in cases not associated with puerperium. For example, in the schizophrenic is the prognosis any better because the puerperium is a precipitant factor?

DR. HAROLD S. HULBERT (Chicago, Ill.).—Were any of these children born after divorce or the death of the husband? Did any of the children die and then the mother develop her psychotic symptoms? Apparently the essayist assumed the domestic situation persisted and all three persons lived together.

DR. ELEANORA B. SAUNDERS (Towson, Md.).—As to the question what is the diagnosis of the case with rectal pain, we made a diagnosis of schizophrenic reaction and the outlook has been unfavorable.

The one month was arbitrary. I didn't want to take cases that had developed too long after the childbirth, and I didn't want to include those before or during the pregnancy. Of course, some of them did show symptoms before delivery but I didn't accept those cases for this individual study. I took only those that developed within the month.

As to the question of frigidity, the majority of patients had some difficulty in their adjustment and a great many were frigid.

Dr. Zilboorg asked me another question about affective or schizophrenic. May I ask what that was?

DR. GREGORY ZILBOORG (White Plains, N. Y.).—I was interested in the relationship between the clinical manifestation of the cases and the history of the attachment to one of the parents. What was the clinical diagnoses of those women who showed a preeminent attachment to the mother?

DR. ELEANORA B. SAUNDERS (Towson, Md.).—Those with more striking, outstanding attachments to the mother were usually schizophrenic in nature.

As to the gentleman's question with regard to passion, many of the women felt that after the first child they were more easily adjusted in their sex relations to the husband than before, although that won't hold in every case.

The prognosis, in my opinion, is not altered in a great measure by the association of the puerperium. Of course there are individual factors, and there are the factors associated with this specific state, but I think we would be much safer in making our prognoses associated with studies of personality, going over cases as we do in other types at other periods in life, and consider *that* much more than the mere association with the puerperium.

As to the divorce or death of the husband, I have instances of divorce in two cases, one before the child was born. I have no instances in which the husband died at that immediate time. I have one instance in which the child died. There was one child that was dead born, and another child died within two or three days after delivery.

I hope I have answered all the questions.

RECENT METHODS IN THE TREATMENT OF GENERAL PARALYSIS.

A BRIEF SURVEY.*

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It was stated by Spielmeyer¹ some years ago that theoretically there is nothing about the pathological process of which general paralysis consists that excludes the possibility of therapeutic success; and the experience of the past few years has tended increasingly to support the correctness of this pronouncement. This experience has centered about the use in the treatment of general paralysis of the highly soluble arsenical, tryparsamide, and of fever therapy as carried out in particular by inoculating with tertian malaria; and there can be no longer any question that the *immediate* clinical results, at least, which either of these two measures is capable of producing definitely surpass those obtainable by any ordinary² therapeutic procedures previously available. This statement we would substantiate by a brief survey of these immediate therapeutic results, considering first tryparsamide, the employment of which, covering the past five years, has so far, apparently, been confined almost altogether to the United States.

Perhaps the most favorable experience with tryparsamide has been that which was embodied in the original report by Lorenz and his collaborators,³ who state that of 56 institutionalized patients

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

¹ Spielmeyer, W.: Die Behandlung der progressiven Paralyse. Arch. f. Psychiat., 1913, 50, 76.

² That is, apart from the therapeutic technique used by Solomon, who, using an intensive system of intravenous, intraspinal, and intracisternal injections of arsphenamine and arsphenaminized serum, has obtained results in (largely ambulatory) patients with general paralysis which compare favorably with those obtainable by tryparsamide and malaria. (Dr. H. C. Solomon: personal communication.)

³ Lorenz, W. F., Loevenhart, A. S., Bleckwenn, W. J., and Hodges, F. J.: The Therapeutic Use of Tryparsamide in Neurosyphilis. Jour. Am. Med. Assn., 1923, 80, 1497.

with general paralysis (two of whom had tabo-paresis), 29 (or 52 per cent) "have been discharged from the hospitals and are holding positions and earning a livelihood for themselves and their families for periods ranging from six months to two years"; while 10 are reported as "improved," and 17 as "unimproved." A second series* included 90 ambulatory patients (of whom nine were sufficiently psychotic to have warranted commitment); of these, 37 were

TABLE 1.

TRYPARSAMIDE-TREATED CASES OF GENERAL PARALYSIS.

Author	Total cases	Remissions	Partial remissions	Unimproved or worse	Died	Remarks
Lorenz <i>et al.</i> ²	56	29	10	17	..	42 "late," 12 "early" cases.
Lorenz <i>et al.</i> ⁴	90	37	38	15	..	Ambulatory cases.
Moore <i>et al.</i> ⁵	40	13	10	12	5	
Ebaugh and Dickson ⁶	52	15	..	..	..
Wile and Wieder ⁷	44	9	..	..	..
Stokes and Wilhelm ⁸	47	7	5	35	..	Committed patients.
Stokes and Wilhelm ⁸	31	17	9	5	..	Out-patients.
O'Leary and Becker ⁹	50	6	33	11	..	"Early" cases.
Kirby and Hinsie ¹⁰	69	21	15	14	19	Committed patients.
Schwab and Cady ¹¹	63	37*	13†	13	..	Out-patients.
Total	542	191 (= 35.2 per cent).				

* Reported as "improved"—"restored to varying degrees of economic usefulness."

† Reported as "arrested in their downward course."

"mentally restored," or 41 per cent, 38 were "distinctly improved" (42 per cent), nine remained unchanged, and six grew worse.

Table 1 presents a more or less representative selection of some

² Lorenz, W. F., Loevenhart, A. S., Reitz, T. F., and Eck, C. P.: The Use of Tryparsamide in Neurosyphilis. *Am. Jour. Med. Sci.*, 1924, 168, 157.

⁴ Moore, J. E., Robinson, H. M., and Lyman, R. S.: The Results of Tryparsamide Therapy in Syphilis. *Jour. Am. Med. Assn.*, 1924, 83, 888.

⁶ Ebaugh, F. G., and Dickson, R. W.: The Use of Tryparsamide in the Treatment of General Paralysis. *Jour. Am. Med. Assn.*, 1924, 83, 803.

⁷ Wile, U. J., and Wieder, L. M.: Tryparsamide in the Treatment of Neurosyphilis. *Jour. Am. Med. Assn.*, 1925, 84, 1710.

⁸ Stokes, J. H., and Wilhelm, L. F. X.: Tryparsamide in the Treatment

of the clinical results obtained in the treatment of general paralysis which have been reported during the past five years by workers who have dealt with groups averaging 50 cases. It will be noted that these results range from 15 per cent to more than 50 per cent of more or less complete remissions, depending in large measure upon the character of the cases, whether ambulatory patients presumably in the earlier stages of their disorder or institutionalized patients representing for the most part a considerable degree of advancement of the disease, and depending also to no small extent, undoubtedly, on the criteria of clinical improvement employed by the individual observer and on the personal equation therein involved. If these results, in spite of a variability introduced by an insufficient homogeneity in the material itself, are averaged, it is seen that a very material degree of improvement, amounting to a more or less complete remission of mental symptoms together with a considerable if not always complete restitution of economic efficiency, characterizes something like 35 per cent of a group of more than 500 general paralytic patients in all stages of the disease.

It is agreed, I think, by all observers that modification of the Wassermann reaction in the spinal fluid does not run *pari passu* with the clinical improvement produced by tryparsamide—that clinical results, when obtained, almost invariably outstrip serologic response. Indeed, in terms of dosage it may be said that whereas some thirty injections will usually produce the maximum clinical effect of which the drug is capable in the given case, a much larger amount will often be required before any very appreciable influence upon the spinal fluid findings is observable. Solomon and Viets,¹³ for example, report that in some cases 75 or more injections are

of Neurosyphilis: A Study Based on the Observation of 152 Patients for Eighteen Months. *Arch. Derm. and Syph.*, 1925, 11, 579.

⁹ O'Leary, P. A., and Becker, S. W.: Further Observations on the Treatment of Neurosyphilis with Tryparsamide. *Med. Jour. and Record*, 1926, 123, 305.

¹⁰ Kirby, G. H., and Hinsie, L. E.: Tryparsamide Treatment of General Paralysis. *State Hosp. Quarterly*, 1926, 12, 53.

¹¹ Schwab, S. I., and Cady, L. D.: The Use of Typarsamide in Neurosyphilis. *Am. Jour. Syph.*, 1927, 11, 1. (This article contains further references to the subject.)

¹² Solomon, H. C., and Viets, H. R.: Tryparsamide Treatment of Neurosyphilis: Second Report. *Jour. Am. Med. Assn.*, 1925, 85, 329.

necessary before serologic improvement takes place; and it has been our experience¹³ that, although 24 and 48 injections have produced complete negativity of the spinal fluid (in two cases out of 23), upwards of 100 injections have in some cases been ineffective in very materially modifying the strength of the spinal fluid Wassermann reaction.

Of the treatment of general paralysis by inoculation with malaria it may be said that the immediate therapeutic results obtainable in unselected cases are no longer a matter of question. One derives this definite opinion from the fairly high degree of uniformity characterizing the clinical results which have been achieved in the very large number of patients who have now been subjected to this therapeutic procedure; while in further support we have the considerably longer period, as compared with the case of tryparsamide, over which many of the patients so treated have now been observed. The purely quantitative aspect of the therapeutic possibilities of malaria may be readily perceived from the synopsis of published reports giving the clinical outcome observed in rather more than 2000 cases of general paralysis as recorded in the literature to April 1, 1926, which Driver and his associates¹⁴ have

TABLE 2.
SYNOPSIS OF MALARIA TREATED CASES OF GENERAL PARALYSIS RECORDED IN
THE LITERATURE TO APRIL 1, 1926.

(Driver, Gammel and Karnosh.¹⁴)

Total cases	2,460	
Greatly improved (full remissions).....	676	27.5
Moderately improved (incomplete remissions).....	630	25.6
Unimproved (condition worse, or died).....	1,154	46.9
		<hr/>
		100.0
Definitely affected by treatment.....	53.1	
Little or not at all affected.....	46.9	

recently published. From their tabulation, if we substitute for the 39 cases published in our preliminary report of 1925 the 165

¹³ Bunker, H. A., Jr.: Effect of One Hundred Injections of Tryparsamide Upon the Spinal Fluid in General Paralysis. *Am. Jour. Med. Sci.*, 1928, 175, 265.

¹⁴ Driver, J. R., Gammel, J. A., and Karnosh, L. J.: Malaria Treatment of Central Nervous System Syphilis. *Jour. Am. Med. Assn.*, 1926, 87, 1921.

cases reported below by us, we find that out of a grand total of 2460 cases, 676 are given as "greatly improved (full remissions)," or 27.5 per cent of the total number; 630 are designated as "moderately improved (incomplete remissions)," or 25.6 per cent; and 1154 are described as "unimproved (condition worse, or died)," or 46.9 per cent of the total series. It should not be overlooked that if we consider as a single group those patients who were regarded as having registered *some* degree of definite improvement, we find that in 53.1 per cent of the entire series the malaria treatment apparently exerted a definitely favorable influence upon the course of the disease, even though this influence may have been in many instances of a partial or temporary character.

It may be permissible to append a tabulation of our own observations, on the ground that our material has provided a reasonably severe test of the efficacy of the malaria treatment in that in the case of nearly all of 165 patients included commitment to an institution had become necessary.²⁵ Table 3 presents these observations

TABLE 3.

CLINICAL OUTCOME IN 165 MALE PATIENTS TREATED BETWEEN JUNE 1, 1923,
AND MARCH 1, 1928.

(New York State Psychiatric Institute.)

			(As of 2 yrs. ago)
I. Full remissions	53	32.1	(34.9)
II. Marked mental improvement—incomplete remissions—"bedingt berufsfähig" ²⁶ ..	18	10.9	(12.3)
III. Unimproved, or only slight improved or definite but transitory improvement....	50	30.3	(32.0)
IV. Died	42	25.5	(20.8)
Of whom there died of paresis, 5 months to 39 months after treat- ment	14		
Lost sight of.....	2	1.2	....
	<hr/> 165	<hr/> 100.0	<hr/> (100.0)

²⁵ These patients are thus comparable with the tryparsamide-treated patients reported by Kirby and Hinsie¹⁰ in every respect save that the malaria series consisted of male patients only, whereas the tryparsamide series of 69 cases was composed of 16 male and 53 female patients.

as brought up to March 1, 1928; thus only eight out of the 165 patients have been followed for a period less than six months in duration, all of them for at least three months. It will be noted that while our proportion of more or less complete remissions (32.1 per cent) slightly exceeds that of the composite group of 2460 cases, our estimate of the total patients who were definitely affected by treatment (complete and incomplete remissions combined) is distinctly lower (43 per cent) than the number thus classified in the composite group (53 per cent).

It thus appears unquestionable that even among unselected patients exhibiting the most various degrees of advancement of the disease, the malaria treatment is capable of a therapeutic effect sufficiently decisive to produce a complete remission of mental symptoms and a more or less complete restitution of economic and social efficiency in at least 25 to 30 per cent of all cases. Furthermore, it may with some reason be assumed that the cases of incomplete remission differ from those of a more satisfactory grade, not because the therapeutics *per se* has been less efficient, but by reason, rather, of adventitious, extra-therapeutic factors. If this supposition is correct, then the malaria treatment may be justly said to exercise a potentially "curative" effect upon fully 50 per cent of unselected patients with general paralysis.

TABLE 4.
COMPARISON OF MALE AND FEMALE PATIENTS.

	165 males	67 females
I. Full remissions	32.1	11.9
II. Incomplete remissions	10.9	19.4
III. Unimproved, or slight or transitory improvement.....	30.3	40.3
IV. Died	25.5	28.4

It is interesting to note in passing the difference in the response to this method of treatment which is apparently exhibited by women as compared with men. Among those observers whose patients have included both sexes, Grant and Silverston,²⁸ for example, have remarked that malaria treatment does not seem to be so successful

²⁸ Grant, A. R., and Silverston, J. D.: General Paralysis and the Treatment by Malaria Fever. Jour. Ment. Sci., 1926, 72, 192.

in women as in men; and in Kasperek's series,¹⁷ 22 out of 69 men, but only 4 out of 20 women, achieved complete or incomplete remissions following treatment with malaria. Similarly, at the Psychiatric Institute, as shown in Table 4, only 12 per cent of 67 women,¹⁸ as compared with 32 per cent of 165 men, attained a state of more or less complete remission; yet if complete and incomplete remissions are considered as a single group, the discrepancy is much less pronounced, for these are represented by 43 per cent of the male patients and by 31 per cent of the female. It is possible that this sex difference in the response to malaria treatment is due not so much to some more or less fundamental factor as to the fact that the economic situation of most women of the hospital class makes it less imperative that cognizance be taken by their immediate family of a reduction in efficiency and a general mental deterioration on their part, so that they are brought to the hospital for treatment at a later stage, on the average, than is the wage-earning male. And so far as concerns our experience at the Institute, it is certainly not irrelevant that 71 per cent of the 67 women,¹⁸ as compared with only 58 per cent of the 165 men, were cases of the simple dementing type, so called, of general paralysis. On the other hand, it may be of significance that, whereas 16 out of the 19 male patients of the "manic" type achieved a complete or incomplete remission, such an outcome was observed in not a single one of the six patients of this clinical type in the female series.¹⁸ Apart from this last observation (involving, as it does, too few data to be conclusive), it is possible, although by no means certain, that the difference between the sexes as regards response to the malaria treatment is more apparent than real.¹⁹

So much for the immediate therapeutic results which the malaria treatment is capable of bringing about—results which are of a very definitely favorable character in not much less than one-third of

¹⁷ Kasperek, G. K.: Ein Beitrag zur Behandlung der progressiven Paralyse mit Malaria. *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1926, 106, 586.

¹⁸ Hinsie, L. E.: Forthcoming report in the *Psychiatric Quarterly*. (I would here acknowledge Dr. Hinsie's kindness in placing his data at my disposal.)

¹⁹ On the other hand, it is our definite impression,¹⁸ though unsupported by sufficiently numerous figures, that the women patients have responded much more satisfactorily to tryparsamide than to malaria, and apparently more satisfactorily to tryparsamide than have the men.

all cases of general paralysis. What evidence have we that malaria really arrests the pathological process of which general paralysis consists? In other words, what of the duration or permanence of these favorable results; and what of those patients who, though failing to manifest any noteworthy mental improvement, fail also to exhibit any demonstrable retrogression over appreciable periods of time, becoming seemingly stationary or "arrested" cases? Obviously, only those patients who have now been under observation over a period of some years are those whose cases may throw some light on this question. We may therefore turn our attention for a moment to some of the reported cases which have been followed over a period of several years subsequent to treatment.

Of the eight patients³⁰ who underwent treatment at the hands of Wagner von Jauregg in 1917, and who were subsequently followed for a period of six and one-half to seven and one-half years, five achieved a full remission. In three of these (cases 3, 5, 6) the remission persisted throughout this rather extended interval, although in one case (case 5) it early was punctuated by a relapse in the form of a depression of several months' duration, followed by full recovery. A fourth patient (case 9) died at the end of a year of an intercurrent infection. Relapse, followed by a stationary condition, occurred in the fifth patient (case 1) after a full remission of seven months' duration. One patient (case 8) manifested an incomplete remission; he subsequently committed suicide. Two patients (cases 4 and 7) exhibited no improvement and eventually died.³¹

Thus, from the standpoint of permanency of therapeutic effect, we have three patients (3, 5, 6) who maintained a state of full remission (out of five originally attaining this status) throughout a post-treatment period of between six and one-half and seven and one-half years. It would certainly seem legitimate to speak of a definite arrest of the disease process in all three of these cases.

Of the 25 patients subjected to the malaria treatment between September, 1919, and March, 1920, when von Jauregg resumed his work with this mode of therapy, five died shortly after the termina-

³⁰ Of the nine patients originally inoculated, one (case 2) died of convulsions before the completion of treatment.

³¹ Gerstmann, J.: *Die Malariabehandlung der progressiven Paralyse*. Julius Springer, Vienna, 1925; pp. 19-24, 84, 85.

tion of the course of fever, which it was necessary to interrupt prematurely in four. Two patients exhibited no mental improvement; one of these was lost sight of, but the other was still alive, condition stationary, some five years, at the time of publication, subsequent to treatment. Of the remaining 18 patients, seven achieved a complete remission, six an incomplete remission, and five exhibited a moderate improvement. Only one of the seven patients to attain a full remission suffered a relapse, and this was of very moderate grade, had its onset only after three years, and was succeeded by a stationary condition; in the remaining six patients the remission continued unaltered throughout a period of observation of nearly five years. This latter statement holds true of two further patients, originally classified as incomplete remissions, who eventually improved to the point of a complete remission. Three patients with incomplete remissions maintained this status throughout the observation period of nearly five years. In the sixth patient—who was, however, a case of juvenile paresis—relapse occurred after a little more than one year. Of the five patients whose mental improvement was very moderate, only one was alive at the end of five years, although one died of an intercurrent condition only after a stationary period of three years' duration.²²

Thus, out of the second group, consisting of 25 patients, there were still alive, at the end of nearly five years: eight patients in a state of full remission (out of nine who originally attained this state), three patients in a state of incomplete remission with a reduced vocational capacity (out of four originally so classified), and one patient (out of five such) who achieved but a moderate degree of mental improvement, in addition to at least one out of two patients who exhibited no mental improvement. Besides evidence that the malaria produced a seeming arrest of the disease process of at least five years' duration in 13 (possibly 14) of the 25 patients in this group, these observations provide some evidence in support of the statement frequently made that the better the therapeutic result achieved, the longer does it tend to endure.²³

²² Gerstmann, J.: *loc. cit.*, pp. 85-88.

²³ Kirby, G. H., and Bunker, H. A., Jr.: Types of Therapeutic Response Observed in the Malaria Treatment of General Paralysis. *Am. Jour. Psychiat.*, 1926, 6, 205.

Certain of our own patients, though they are few in number, have been followed for a similar relatively protracted period. They underwent treatment with malaria between June 1, 1923, and June 1, 1924, so that the period of observation in the case of the 29 patients who survived the course of fever by more than two months has now extended over a space of four to five years. Five patients have died during this interval: one patient, a case of incomplete remission, committed suicide eight months after completing treatment; four patients died of general paralysis at intervals ranging from six months to three years and one month subsequent to treatment. Of the 24 patients still living, five are unimproved, although their condition continues to be to all appearances stationary; one has retrogressed both mentally and physically, although still alive after more than four years; two have shown moderate improvement without any evidence of subsequent retrogression; two relapsed temporarily and to only a moderate degree after a full remission of two years' and three years and three months' duration, respectively;²⁴ two achieved incomplete remissions, one of whom, however, committed suicide 44 months after treatment;²⁵ 12 attained full remissions which have shown no signs of subsequent modification after a period of four and one-half to five years in six of them and of at least four years in all 12. Thus it may be permissible to speak of a definite arrest of the disease, and this throughout a period of between four and five years, in at least 21 of these 29 patients (Table 5).²⁶

²⁴ Both these patients attained nearly their previous status after some four months—one without treatment, and one following a second course of malaria.

²⁵ It seemed to us very doubtful whether this patient's suicide was related to his previous psychosis.

²⁶ Since the foregoing was written, a second edition of Gerstmann's monograph has appeared. While the post-treatment period of observation of the patients treated in the Vienna clinic has thus been extended by three years, the status of those enumerated in the left-hand column of Table 5 has undergone no change throughout this interval; so that we now have (a) 3 patients still alive and in an unchanged state of complete remission at the end of nine and one-half to ten years, and (b) 8 instances of complete and 3 of incomplete remission in which that status has been maintained throughout a period of nearly eight years. Thus we may now summarize Table 5 in the statement that *out of 28 patients who originally attained a complete remission, 23 are still in that state at the end of four and one-half to ten years.*

TABLE 5.

EVIDENCE OF PROTRACTED ARREST OF PARETIC PROCESS AFTER MALARIA TREATMENT.

Author	Total cases		Post-treatment status	Eventual status (6½-7 yrs.)
Wagner von Jauregg..	8(9)	Full remissions	5	3
		Incomplete remission	1	..
		Unimproved	2	..
			—	—
			8	3
Gerstmann	25		(Nearly 5 yrs.)	
		Full remissions	9	8
		Incomplete remission	4	3
		Moderate improvement	5	1
		Unimproved	2	1
		(Died)	(5)	..
Psychiatric Institute ..	29		—	—
			25	13
			(4-5 yrs.)	
		Full remissions	14	12
		Incomplete remission	2	1
		Moderate improvement	2	2
		Unimproved	5	5
		Worse	1	1
		Suicide (8 months).....	1	..
		Died (6 to 37 months).....	4	..
			—	—
			29	21

As regards the effect of malaria treatment upon the spinal fluid abnormality, the agreement seems to be general that, as also in the case of trypanamide, there is no necessary parallelism between clinical outcome and modification of the spinal fluid Wassermann reaction, that a maximal clinical result is consistent with the absence of any modification of the latter and a minimal therapeutic effect equally consistent with ultimate negativity of the spinal fluid, and that the influence of the malaria treatment upon the spinal fluid pathology is of slow evolution. If we may cite our own cases on the ground that almost without exception they have received no supplementary antisyphilitic treatment and thus demonstrate what malaria is capable of accomplishing unaided in effecting

a modification of the Wassermann reaction in a disease notoriously Wassermann-fast as regards the spinal fluid, we may say that 19 out of 47 patients followed for at least three years have shown little if any modification in the strength of the Wassermann reaction in the spinal fluid, in seven there has been a slight though definite modification (to negative with 0.2 c. c.), in 11 the reaction has become greatly modified (to negative with 0.5 c. c.), and in 10 it has become completely negative (Table 6). That almost one-

TABLE 6.

INFLUENCE OF MALARIA ON THE WASSERMANN REACTION IN THE SPINAL FLUID IN 47 PATIENTS FOLLOWED FOR AT LEAST THREE YEARS.

	1.0 c.c.	0.5 c.c.	0.2 c.c.	Num- ber	Per cent
Unchanged				19	40
Acetone-insoluble antigen ..	++++	++++	++ to ++++		
Cholesterol antigen	++++	++++	++++		
Modified				7	15
Acetone-insoluble antigen ..	++++	++ to ++++	Negative		
Cholesterol antigen	++++	++ to ++++	Negative		
Much modified				11	24
Acetone-insoluble antigen ..	++ to ++++	Negative	Negative		
Cholesterol antigen	++++	Neg. to ++	Negative		
Negative				10	21
Acetone-insoluble antigen ..	Negative	Negative	Negative		
Cholesterol antigen	Neg. to ++	Negative	Negative		
				47	100

half of these patients should eventually exhibit a marked reduction in the strength of the Wassermann reaction in the spinal fluid is sufficiently remarkable, and that the reaction in more than one-fifth of the cases should become completely negative seems even more so.²⁷ A complete clinical remission of well over two years' duration has characterized nine of the 19 cases in which the Wassermann reaction has remained strongly positive; conversely, one of the 10 patients with a reaction which ultimately became negative has died (after 37 months), and in three of these 10 the clinical condition remains stationary and unimproved.²⁸

²⁷ These results are rather better than those recently reported by Büchler, who states that the spinal fluid Wassermann reaction was unchanged in 75 per cent of his cases, improved in 10 per cent, and rendered negative in 10 per cent. It is possible that a greater lapse of time since treatment may account in part for our better results, obtained though they were with a Wassermann technique which we consider sensitive. (Büchler, P.: Sero-logische Beiträge zur Malariabehandlung der Paralyse. Arch. f. Psychiat., 1927, 80, 384.)

²⁸ Bunker, H. A., Jr.: Influence of Malarial Treatment on the Spinal Fluid in General Paralysis. Arch. Neurol. and Psychiat., 1928, 19, 478.

In conclusion we would call attention to a phenomenon which Goeckerman,²⁹ Kirschbaum³⁰ and others³¹ have recently remarked—namely, the occurrence of late syphilides, rarely seen in the presence of neurosyphilis, in a few general paralytic patients who have undergone the malaria treatment. Such syphilides, states Goeckerman, “are widely accepted as external evidence of an allergic condition of the body tissues, and as such probably indicate at least a partial immunity.” These observations are of value, then, in the suggestion they carry—a suggestion further supported by the very gradual character of the influence which malaria exerts upon the spinal fluid—that the malaria treatment reestablishes a partial immunity against the underlying disease. If this be true, an interesting light is thrown upon the clinical evidence here surveyed, that, more or less irrespective of the degree of mental restoration possible in the given case, a condition of at least partial immunity of protracted duration, at any rate a seeming arrest of the disease process over a considerable period of time, is brought about in a significant proportion of patients subjected to the malaria treatment.

SUMMARY.

1. Of 542 tryparsamide-treated cases of general paralysis collected from the literature, full remission of mental symptoms and restoration of the patient to approximately his former status occurred in about 35 per cent.

2. Speaking generally, some 30 injections of tryparsamide usually produce the maximum of clinical improvement of which the drug is capable in the given case, but upwards of 100 injections

²⁹ Goeckerman, W. H.: The Therapeutic Mechanism of Malaria Treatment of General Paralysis. *Am. Jour. Med. Sci.*, 1928, 175, 261. (One instance in a malaria-produced remission.)

³⁰ Kirschbaum, W.: Tertiär-luische Erscheinungen bei progressiver Paralyse besonders nach Malariabehandlung. *D. Ztschr. f. Nervenheilk.*, 1927, 96, 61. (One instance in a malaria-produced remission.)

³¹ Markuszewicz: *Ztschr. f. d. ges. Neurol. u. Psychiat.*, 1925, 99 (one instance accompanied by a change in the character of the psychosis).

Schulze, F. O.: *D. med. Wchnschr.*, 1925, p. 1856 (four cases).

Pfeiffer: *Psychiat.-neurol. Wchnschr.*, 1926, No. 29 (one instance accompanied by a marked mental improvement).

(These references cited by Kirschbaum.)

are often necessary to modify materially the strength of the Wassermann reaction in the spinal fluid.

3. Of 2460 malaria-treated cases of general paralysis collected from the literature, a full remission occurred in about 27 per cent, with the production of an incomplete remission in an additional 26 per cent.

4. Malaria, unaided by supplementary specific treatment, is capable of a very definite influence upon the spinal fluid pathology; but this influence, especially as regards the Wassermann reaction, is very gradual in its manifestation.

5. Women seem to respond less successfully to malaria treatment, on the whole, than do men; but it is possible that this difference between men and women patients is more apparent than real.

6. The seeming arrest of the disease process effected by malaria may be of protracted duration. Such a status characterized three out of eight patients at the end of six and one-half to seven and one-half years, 13 out of 25 patients at the end of nearly five years, and 21 out of 29 patients at the end of four to five years.

DISCUSSION.

DR. R. F. L. RIDGWAY (Harrisburg, Pa.).—I would like to ask if in your experience you are justified in recommending that all paretics receive malaria treatment.

DR. HENRY A. BUNKER (New York, N. Y.).—I am not certain that I can tell those patients in whom no improvement is to be expected from those in whom it may be, because I have been surprised in both directions. I see no reason why the malaria treatment should not be applied to all patients with general paralysis, possibly on that ground alone. There is always a fighting chance that the case, no matter how hopeless it may appear, may be one of those that will respond in an entirely unexpected way to the treatment. At the same time there is the practical consideration involved that those patients who achieve merely an arrest of their disease, apparently, and remain in a stationary stage for four, five and more years are not examples of any great accomplishment from a practical standpoint. In fact my personal opinion is that many of such stationary but permanently institutionalized patients would be better off if they were dead. This is a question of casuistry, however, which I might find it embarrassing to attempt to enter into further.

THE STUDY OF PERSONALITY.*

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The title of this paper is somewhat misleading, since the real object is to present a statement of some of the difficulties which lie in the way of any adequate study and evaluation of personality.

To begin with, perhaps no word in our language is more loosely used than the term personality. That this is related to a confusion in the concepts which are expressed by the word does not simplify matters. In certain usages, the underlying concept seems to be the same as that expressed in the word "charm." Again, the concept seems to be one of aggressiveness. In more scientific writings, the term seems sometimes to be used to cover all those mental characteristics of the individual which lie outside the field of intelligence, particularly emotional, instinctive and volitional factors. Against this, we have the use of the term to express the total individual in all his reactions. The dictionaries are not helpful. As defined in Webster, personality is "that which constitutes distinction of persons; distinctive personal character; individuality. Personality implies complex being or character having distinctive and persistent traits, among which reason, self-consciousness and self-activity are usually reckoned as essential."

Perhaps the commonest usage in psychiatry at present is that in which the term personality stands for the "total person." Yet frequently some or many elements of this total person are eliminated from study or evaluation, as I shall attempt to bring out later.

If we turn to the terms with which we attempt to describe personality, we find confusion worse confounded. Timid, sensitive, withdrawn, over-active, phlegmatic, emotionally unstable—here are sample terms used with all the appearance of objective finality. Yet if we analyze their real meanings, we find they are largely based on subjective comparisons, and should not be used in such arbitrary fashion as is customary.

* Read at the Eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

To say that a person is timid implies a number of points. First, that he *behaves* timidly. That is to say that he reacts to some stimuli with timid behavior. But to be able to say that he is timid, we should know (1) the character of the stimulus (or situation), (2) the intensity of the stimulus, (3) the exact character and intensity of the reaction, (4) the character and intensity of reaction to other stimuli of a fear provoking character; provided we have some objective way of determining what stimuli are fear provoking, and why they are so.

Some simple examples. A child is timid in meeting strange people, but not with strange animals; while another reverses this. Another child is frightened, cries and runs to an adult when the vacuum cleaner is turned on, but is delighted with the opportunity to ride in an automobile.

How can we compare the intensity of these stimuli? Or the extent of the reactions? Actually, we do it very much on subjective attitudes of our own in relation to them.

To say that an individual is phlegmatic is to imply that he reacts with less than the average amount of emotional behavior to varying situations. It is to be noted here that there is no necessary relationship between the inner emotional life of the individual and the external behavior which would express the emotion. In a given situation several individuals may become angry. One of these explodes into verbal abuse; another begins an actual fight; a third may change color, tense the lips and say or do nothing; while a fourth may laugh. Each may, so far as one can judge, feel the same intensity of emotion but behavior in these situations is conditioned in different directions. Of the first two we should be apt to say that they had explosive tempers; of the third that he had not much temper and was well controlled and of the fourth that he had a very easy going temper. In other words, our judgments are usually based on rather superficial, external points in behavior which we compare with some standard we have set up for ourselves. We usually base this standard on our own estimate of our own reactions to such stimuli, since, after all, the only individual whom we know at all well is the self.

One of the factors which has been most neglected in this attempt to build up our concepts of personality is that of the situations to

which reactions must be made. In the usual descriptions of personality to be found in case records these are either omitted entirely or stated in very general terms. Even when the excellent Hoch-Amsden scheme is used this is apt to be true.

One fairly adequate safeguard that has been erected is that of the multiple approach. That is to say, the different people who have been in contact with a given individual are asked to describe the individual as they see him. Here profound variations may be found. For example, the teacher finds the child shy, timid and reserved, whereas behavior of this sort has not been found in the home. Indeed, the behavior may there be described as rather forward and care-free. Where descriptions of the behavior are available from a number of different people it is oftentimes possible to make a fairly satisfactory estimate of the personality. Again, however, it seems to me that this estimate will be satisfactory in exact proportion to the accuracy of our analysis of the varying situations in which the individual shows his varying behavior. It becomes particularly important to have some fairly clear cut picture of the persons who present such important stimuli to behavior.

Perhaps the most fundamental point is to remember that the study of personality at any given time must be genetic and dynamic, so that we have some outline of the ways in which the personality has developed and the dynamic inter-relationships of succeeding events.

Here we arrive at another confusion in concepts. Psychiatric literature definitely gives the impression that how the personality will evolve is predetermined in the biological make-up of the individual. It is only within the last five years that there has been a turning away from this point of view with the realization that experience of what ever nature can be built into the structure of personality. To-day I think it fair to say that the individual at any given moment is regarded as the product of all that has gone before, including not only his original constitution but the modifying influences of the development of life itself.

We have come to realize quite clearly, it seems to me, that all experience becomes a part of the life of the individual and may have a destructive or constructive effect in the evolution of the final personality. We have come to see also that the external

behavior is not necessarily the direct result of a personality trend but that it may be and often is compensatory for an emotional disturbance of one or another sort. This has led to a greater and greater emphasis on the genetic approach into the individual's own reactions and experiences as well as through the more superficial process of history taking. So we find that a child who would be described as impudent, disobedient, incorrigible and conceited such that, with our pitiful tendency to attempt to reduce the entire picture of the human being into a single word or phrase, he would probably be classed as an "egocentric psychopathic personality." Yet, working out the genesis of the behavior with him will in the majority of cases reveal the fact that this behavior is only compensatory for certain emotional conflicts tending to center around his feeling of self-depreciation, a feeling which has perhaps been fostered by many minor events at home and school. There may be very little of reality in these situations which trouble him, yet, so far as his behavior is concerned, they have all the validity of truth.

I should plead, then, for a clear recognition of the fact that as we ordinarily describe personality we are actually describing only the behavior of the individual. Again, that this behavior represents a reaction to stimuli from within and without the individual. Still again, that this behavior may be either the direct working out of something within the individual or a compensation. It becomes necessary to evaluate situations in terms of their stimulus strength if we are definitely to understand personality. Finally, that the only safe method to come to any definite conclusion is to explore as completely as may be possible the individual's experiences and reactions to them in the endeavor to determine what the emotional conflicts are. It has been our universal experience that when this is done the exhibited behavior can be understood in dynamic terms which frequently make it possible to produce modifications in the exhibited reactions.

I should also plead for some standardization in the use of the term personality. It should be used, I think, in the sense of expressing the total individual in all of his mental and physical characteristics which influence or modify or cause his behavior reactions.

This paper is not particularly constructive in the sense that it does not offer a well-defined outline for attempting to carry out

this kind of study; the reason is that the construction of such an outline is extraordinarily difficult. We have been experimenting with an outline which is far from satisfactory. It is as follows:

Give a description of the patient's behavior in the following situations:

1. In reaction to the parents: under ordinary circumstances; in response to punishment or correction of any sort; in response to presents or pleasures provided; in response to any unpleasantness in the family, both when it affects him personally and when it does not; in response to anxiety or depression in one or other parent; in response to nagging and scolding; in response to solicitude; in response to praise; when requests are refused; in relation to parents' special attitudes to siblings.

2. In reaction to siblings: in play relations; in competitive relationships, such as work, school, appearance, etc.; in response to their reaction toward him; in relation to attitudes of parents toward other siblings; toward younger ones; toward older; toward sexes; etc.

3. In reaction to home: Behavior (such as dawdling on the way home) or expressed attitudes (such as unfavorable comparisons with the homes of other children, toward the physical makeup, comfort and recreational possibilities of the home).

4. In reaction to people outside the home:

a. With other children, such as playmates, classmates, etc. In such situations as play, school, or other types of work and any competitive situation. For example, is he a leader, an originator, timid or seclusive, a bully, easily discouraged, does he respect the rights of others, make easy contacts, is he easily communicative, critical, snobbish, etc. Give actual examples of each reaction and situation which produces them.

b. Toward adults, with special reference to variations from the attitudes commonly shown towards the parents.

5. In reaction to authority, whether at home or elsewhere: Give behavior shown, such as rebellion, running away, etc. Variations in reaction to command and persuasion.

6. In reaction to work or duty demands. In the school, home, elsewhere. Give the nature of the tasks; how well or how poorly they are done; how long it takes for him to learn them and his pleasure or displeasure in doing them; the expenditure of energy and the consistency with which he does them.

7. In reaction to his own interests in terms of: what he likes to do; how he goes about it; the expenditure of energy and the consistency with which he works.

8. In reaction towards himself in terms of: Self reliance; tendency to blame himself for his own and others difficulties; the amount of conceit, self pity, etc.

9. In reaction toward life in general: His understanding and acceptance of the realities of his life and situations; amount of day dreaming; imagination; acceptance of responsibility; practical, etc.

In case this analysis should not produce a clear cut picture of the child in terms of: intellectual ability; energy and activity; self assertion; attitude towards himself; attitude towards others; attitude towards reality; temperament; and the objects of his affections, then additional material which will make this clear should be included. It is necessary to get as complete as possible a picture of the physical, mental and social reactions of the patient in terms of satisfying and acceptable behavior as well as in terms of unsatisfying or unacceptable behavior. In addition, this section should give us a fairly clear picture of the attitude of informants towards the various traits manifested in the patient.

Another thing with which we have done some work is a relatively simple behavior rating scale, which is an elastic one in the sense that for each of the 35 behavior items listed there are five definite specific points on the scale, but the entries may be made at any point. It has been found necessary, however, in using this to have reports from several different sources and then to check them. This becomes somewhat impractical in ordinary clinical work because of the considerable amount of mathematical computation which is necessary. We have, however, gotten some very striking leads into complexes and conflicts underlying behavior by having a child rate himself on the scale and then on the same scale rate himself as he thinks his father, mother and school teacher would. This ordinarily brings out striking differences in his estimate of himself as compared with his belief as to the way in which other people would estimate him. In the discussion of the reasons for these differences the actual underlying conflicts often come sharply and quickly to the surface. Another series of valuable leads can be gotten from the Rohrschach test. But it has not so far been possible to devise a relatively simple series of situations to which the individual may be exposed, as in the Binet test.

This paper, therefore, may be summarized as a statement of some of the difficulties and some of the loose thinking which have kept us from coming to a clearer conception concerning personality. Not the least of these is our desire for over-simplification. It is to be hoped that the whole question may be approached from a broader point of view and with more intensive study.

DISCUSSION.

DR. HARRY STACK SULLIVAN (Towson, Md.).—This sort of presentation appeals very powerfully to some of us who are attempting to figure out what can be done to reduce the incidence of mental disorders, because it brings

us to consider that something named by the term personality, as something about which a consensus can be developed. Presumably after a consensus as to what we are talking about, some of our present allegedly rational methods of investigation will be seen to be foredoomed to failure because of bad hypothetical construction on which they rest.

Dr. Lowrey wants to make personality something that several people can talk about intelligently, a very worth while task. I think in his paper he has suggested more than he has made explicit. For example, he talks about one method of investigation they have adopted: having the child grade himself as he is in his opinion, as he is in the schoolman's opinion, and so on. What is implied in such a method? Something highly important; to wit, the personality of the child actually includes these things. That does not say he is conscious of them as such, but he can be brought quite readily to a sort of quasi-consciousness of the fact he is in some way at least three things: He is what he knows he is; he is what papa thinks he is, and he is what mama thinks he is, and so on. If we can secure from him a number of statements about these things which he is in his various social contacts, we have a large amount of data on this personality.

Isn't that one of the very large factors of personality, and isn't that the thing that makes Dr. Lowrey's second group of experiments, the attempt at objective description of personality, so overwhelming vague in its limits, and without interpretation of thought, really quite impossible? Between behavior and thinking there is always the large element of interpretation by the reactor of the situation which is present "before him."

In our contact with each person, with each group, large or small—with such a group, for example, as the American Psychiatric Association, or the American Psychopathological Association, perhaps more individuated—aren't we reacting on the basis of our interpretation of the prevailing situation constituted by the group in regard to ourself? It is what the other fellow thinks about me that is the most important thing in determining just what I do and say in my contact with him. I must have a clue to it before I can guess how to influence him. He thinks I am a person; otherwise there is no relation between us. (If he has negative hallucinations and doesn't see me at all, I have to be a psychopathologist before I can orient any behavior to him). Ordinarily, my first business is to guess what this person—you know we often use other words than "person"—what this person expects of me; what does he think I am. As soon as that is vaguely but swiftly formulated, the problem becomes how shall I make him think I am what I should seem to be in order to accomplish my end with him.

Isn't our behavior, our response vastly more governed by that consideration than it is by even such a thing as the integration of habits? The integration of habits exercises a very powerful influence over the number of things that we are able to attempt to make another person think about us; but at the same time, if pressure be great enough, we may develop originality. We may escape from the integration of habits and do something actually new. In which case if our interlocutor is conscious, he will develop an entirely

new view of our personality, which is perfectly valid so far as it goes, even though no one had any clue to that phase of it, before. Surely we must pay much attention to the factor of others as they exist represented *in us*.

Our unconscious, unwitting, unknown, whatever adjective pleases you—our quasi-conscious and unconscious assumption as to the other fellow's assumption; and our conscious, unwitting, or what you will, attempts to alter that, in a fashion which previous experience has led us to believe will be valuable in the future: such is a formula for much of inter-personal doings.

Definitions of personality which overlook the very large factor constituted by our opinion as to the opinions held by others about us, will always be futile. Efforts to influence human behavior, which do not have definitely formulated within them this factor so potently influential in our contact with other persons, will, it strikes me, be quite futile. They will permit the setting up of such systems as Orthodox Behaviorism, but I doubt if they will ever be of any good to psychiatrists who are occupied with social problems.

I think Dr. Lowrey's contribution cannot be praised too much.

DR. JAMES S. PLANT (Newark, N. J.).—As I understand it, Dr. Lowrey takes the view in his paper that a patient's "personality" is essentially the total situation at the present time. With that, of course, I could take no exception. He is as justified in taking that view as anyone else would in taking any other.

However, I should like to ask him one question, with a bit of introduction to it. The mental part of the patient's reacting mechanism is made up, I think Dr. Lowrey accepted, of his intellectual mechanism and something else. The psychologists have, to a very large extent, determined for the intellectual field, through the intelligence tests, the possibility of certain quite static, inherited, capacities. I should like to know whether Dr. Lowrey doesn't feel that we should address ourselves to the question as to whether there are not similar pretty definitely-to-be-established, capabilities in the "rest of the mind." I know many people would call that "personality." If we could determine any such situation, I am not so certain that it should be called personality; but at least, is there not something which is quite as definitely to be established, as the psychologists have established intellectual capacities?

Without holding, in the least, a brief for the ratings of personality, it is not my conception we can throw them out simply because they do not tell us how the child would react in a new situation. Even admitting the best type of personality ratings, they are not going to tell us how the child will react in a situation to-morrow. The intelligence tests don't tell us that. They don't tell us how the child is going to react in school. That isn't what they are for. They are an attempt to get back at some sort of base line to be depended upon. I wonder if it isn't possible to find some such base line in the rest of the child's mind.

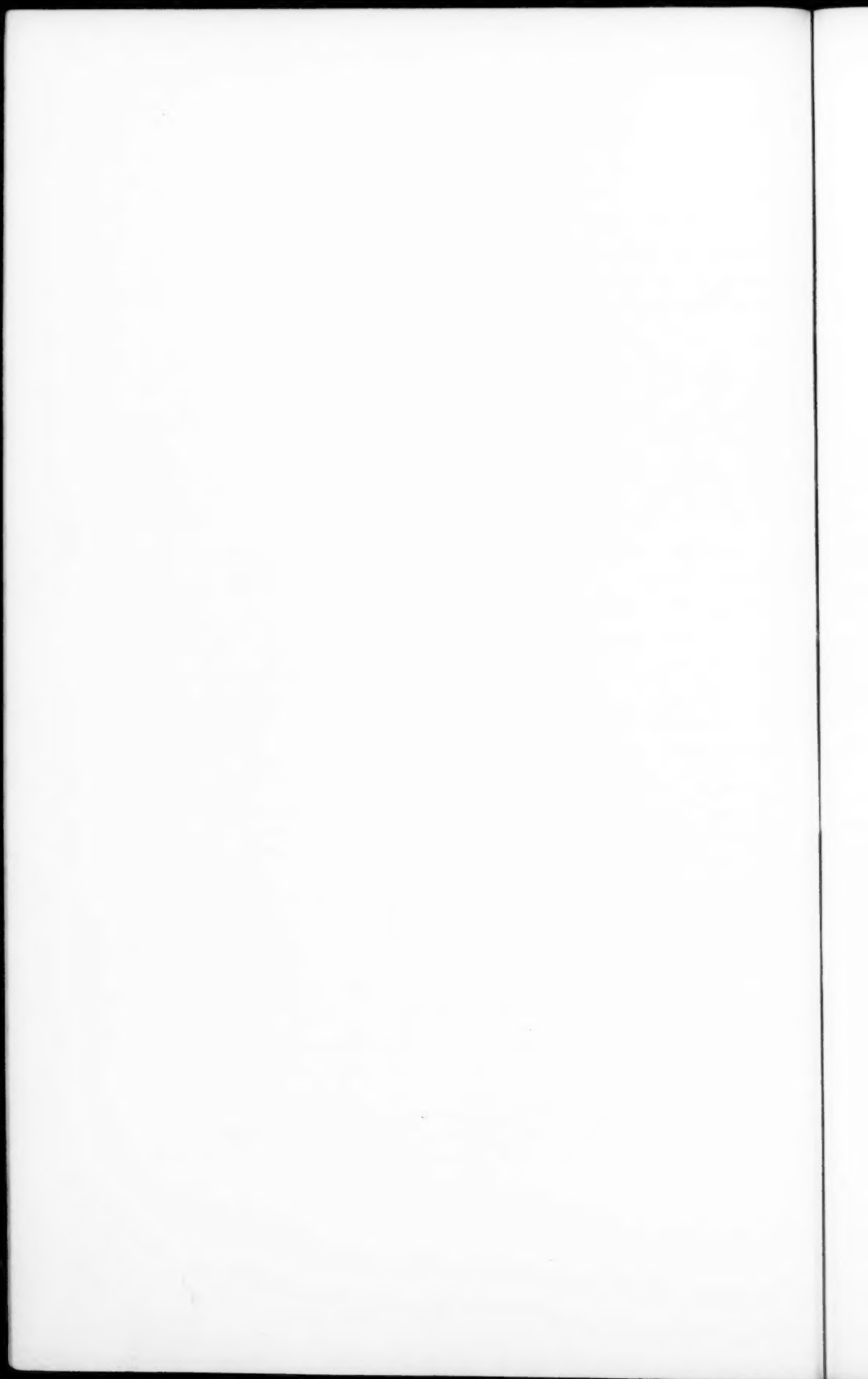
I should like to say that in our experience much of the difficulty with the descriptions of personality to-day has risen out of our insistence upon descriptions, on the part of social workers and psychiatrists, of the patients who

are brought to us. The anxious attitude of the social worker who brings a description of a patient and says to you, "I haven't been able to make a good picture of this patient," perhaps sums up the situation. We are asking dramatic, concise, definite, pictures of people, and that, of course implies behavior terms and implies hitting upon something which is perhaps the nature of what the novelist would give as a description of someone. So we say we haven't a good picture of the patient because, of course, it must be on behavior terms.

DR. LAWSON G. LOWREY (New York, N. Y.).—In answer to Dr. Plant's question, I think it would be highly desirable if we could have some type of rating scale that would give us a precise quantitative definition of the classes of reaction in fields other than the intellectual. The trouble with the tests for intellectual capacity is you have to find out why the individual failed to react to a given situation, because he had a lack of capacity or because of something else, something in the situation, let us say. It is even more markedly true with the other types of reaction, emotional and instinctive reactions. It becomes extremely difficult, also, to rule out the influence of past experience, particularly when it has involved the evolution of some type of conflict. It would be, however, a very important thing if we could get it, but, as I say, it seems to me so far nothing of this sort has come about.

So far as the question of capacity to react in the other fields goes, I am far less certain than I was some years ago that "capacity" is the only answer. Granted that there are biological limitations on the ability of the individual to react in any direction, there are so many rather subtle modifications in the amount and type of reaction the individual shows at different stages, that one becomes very dubious on the question of capacity.

As to what Dr. Sullivan said, I think he elaborated some of the points I tried to make, very nicely indeed.



SOCIOLOGICAL FACTORS CHALLENGING THE PRACTICE OF PSYCHIATRY IN A METROPOLITAN DISTRICT.¹

By JAMES S. PLANT, A. M., M. D.,
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The Essex County Juvenile Clinic has operated for five years in an area of about 800,000 population—divided distinctly into three separate groups. One-half of the total is in the city of Newark—a congested industrial section with a large foreign-born element. Circling this is an area including—among the Oranges, Montclair and Glen Ridge—some of America's wealthiest suburbs. Beyond this lies a large, sparsely populated, practically rural area. The entire county is an integral part of the metropolitan district which has New York City as its center—a district comprising some 10 million persons. Our work in the suburban schools has meant that about 50 per cent of our patients come from the so-called "better classes." Intensive work in what is here termed the "rural" area is only about one year old and too new to be considered in this paper. The problems presented have been divided roughly on a two to one ratio between overt anti-social behaviors (*i. e.*, more or less serious delinquencies) and personality difficulties (shyness, fretfulness, the problems of the bully, etc.). About 5 per cent have represented the habit-forming problems of very young children. There have been 2315 new cases with, of course, varying lengths of follow-up—dependent upon the date of first study.

In the treatment of these problems there have presented themselves baffling factors which seem peculiar to the type of area in which we work—factors beyond personal control and of serious challenge to our accepted psychiatric theory. Not that present-day psychiatric theory is standardized—far from it! Dr. Salmon hailed in 1923² the present "more sensible" day in which we, severally,

¹ Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

² In an address before the Medical Society of New York County, which address—the author believes—has not been published.

"take here a little of Freud and there a little of Kraepelin" as the need appears. Without discussing the validity—or even practicability—of this comfortable eclecticism, admittedly it is here.

With two premises, however, there would be a fair share of agreement. The first is that, as psychiatrists are physicians, psychiatry is—and will be for some time—interested chiefly in the individual and in only so much of his environment as, from a practical point of view, largely impinges upon his arena. One is aware of studies of group, class and national problems—intriguing reinterpretations upon the basis of our individual psychiatry. Even the most sophisticated application of individual psychiatry to social problems does not constitute a "social psychiatry."³ It is on this basis that the term "sociological factors" has been used in this paper—meaning situations and forces in motivation so far transcending the group integrated about the patient as to make them beyond the control of or modification by the psychiatric clinic.

The second premise is that there are a number of basic needs in the mental life and health of the usual child. A lengthening catalogue would imply a lessening unanimity of agreement. Four of these "needs" are included in this paper because (a) they have seemed those which would be most generally accepted by all, and (b) they have represented in this five years the most pervasive and baffling of our problems. These we catalogue as,

1. The child's need of a feeling of "belongingness"—in the sense that he has a feeling of safety, of "at-home-ness," of the potentiality of personal triumph in his actual milieu—be that geographical, cultural or personal.

2. The child's need of a family. Whatever one's school of psychiatry he is stressing more and more the moulding power (for good or evil) of that unique social group which is so omnipresent an element in the child's early environment—the family.

3. The child's need of a mild form of extroversion. Essentially this means that the child develop the mental attitude or habit of living in the world which actually exists rather than in that he wished existed.

³ White (*AMERICAN JOURNAL OF PSYCHIATRY*, VII, 1928, pp. 729-747) has recently, at some length, approximated this question. Essentially he invites a cooperation between psychiatry and the social sciences in which the latter shall re-view their agenda in the light of psychiatric data. In the sense in which the term "social psychiatry" is used in the present article (not with the slightest implication that this is with any more authority than the use of any other meaning for the term) this invitation of Dr. White's does not envisage the establishment of a "social psychiatry."

4. The child's need of such a compactness and cohesion in his environment as will allow of the most complete interplay and integration of all of the factors of his life—physical, intellectual and emotional.

The feeling of "not-belonging" in a situation is not the same as the feeling of being inferior. In the former there are major tones of strangeness, ill-at-easeness, lack of certain footing, anxiety. In fact one frequently sees in these children the same furtive, insatiable, restlessness that appears in adult anxiety states. On the other hand the feeling of being inferior often grows the more certain is the child of his relationship to the compared situation.⁴

⁴Lowrey (*Mental Hygiene*, XII, 1928 pp. 316-330) in the notion of Conflict over Differences has interpreted the term "inferiority" on a wider and, certainly, much more acceptable basis for those who work with children. We ourselves, have, for some time, distinguished the child's craving for two distinct types of security. The first is a "personal" security—such as we have attempted to define in this article. Psychiatry is largely indebted to Healy for classical pictures of these insatiable drives of children who feel or discover that they do not "belong" to their adopting parents. The establishment of this personal security (which is fed by, but in no sense the same as, parental encouragement of the child's dependence) occurs early in the child's life—if at all. It represents those factors in the family relationships of the child which could be predicted generations before the child is born. Thus—long before birth, regardless of any physical, intellectual, or emotional factors—the Hebrew of the Old Testament could be predicted to be a "chosen person." These inherent factors of relationship we have called "personal" because my security in regard to them depends entirely upon the answer to the question "Who am I" and in no sense can in the least be satisfied by any answer to "What am I." The symptom-picture following insults to this "belongingness" is frequent in clinic practice. For example a little girl (9-years old) adopted into a home of comfort, understanding and love has no imagery of her own parents but there is frequent phantasy—"I wonder what they used to call me." This question "Who am I?" is in our experience, distinctly different from the myriad considerations arising from "What am I?" or "What have I?"

Following the establishment of this first security arises the problem of a second security—a security of "accomplishment"—in the sense that it is subject to "reasonable" treatment. One of the fallacies in child guidance work is the notion that "personal" security can be insured through the security of "accomplishment." It is this second factor to which the terms "inferiority" or "difference" may be applied and the reference to Dr. Lowrey's article is to an excellent resumé of this matter. The essential questions here are "What am I," "What have I."

The author is not compiling a dictionary. He does not claim any copyright upon the definitions. Many of the terms used have had definitely other

We early found that almost 90 per cent of the children (under 11 years of age) referred as problems of school adjustment or personality had changed schools at least twice due to the family's moving—and that many of these showed this symptom-picture.^{*} Important as was this factor of what might be called "geographical" insecurity it was beyond our control. Over 78 per cent of all of the children in our suburban area are living in a different locality than they did five years ago.^{*} Undoubtedly the figures for the City of Newark are even more staggering.[†] The motivation here involves socio-economic forces of changing neighborhoods and transcends individual plan or control. A second type of this feeling of insecurity arises when a child is placed in competition with the children of a "better" neighborhood to which the family's suddenly acquired affluence impels it. The extent of this problem is difficult of statistical treatment—however, it is interesting to note that in one area (10,000 population) about 80 per cent of all the children referred to us have shown as their major problem the insecurity arising from their not having been met with favor in the so-called "better" neighborhood to which they have recently moved. It is true that this factor of families seeking new social levels exists everywhere and has a large *personal* motivation. However, there is a close relationship between density of population and impersonality and therefore between density of population and the use of symbols to express success or happiness. Money and street address are the

connotations. The terms are used and defined here, only as they apply to this particular piece of work.

^{*} During the war psychiatrists saw—among some of the mountaineers—those who had no living conception of a "there." The author is indebted to Dr. Bond for a description of this circumscription as a sizeable problem. Schematization is dangerous but we venture to dramatize the present situation to the extent of pointing out that a sizable portion of our own patients have little real living, experiential, conception of "here."

[†] This was determined through directories for the suburban towns for 1927 and 1922. In the 1927 directory the first 100 families of each letter of the alphabet were considered as not having moved if the name appeared in the 1922 directory at the same address or one near enough to represent a possible error or change in street numbering. The result was "same or approximate address" 21.4%, standard deviation 5.3%. Errors may be present but could, in no sense, be sufficient to appreciably alter the situation.

[‡] There would surely be no doubt as to this. A very large part of the city is composed of those with rapidly changing social status.

simplest of these symbols. We have had relatively little difficulty with this second type of insecurity. There are large enough factors of inferiority in it to combat it with accomplishment (*e. g.*, academic or athletic success or unusual opportunity). However, this insecurity of geographical origin—this lack of “belongingness”—has symptoms in children closely allied to that form of personal insecurity which we see arising from having no parents, so-called “bad” parents, etc. For us it has so far been a baffling and unanswered problem.

The family ever increases in importance in any analysis of juvenile problems. This group, this—at least theoretically—integrated set of personal relationships is the touchstone of the child’s problem for us all—whether for constructive therapy or as the most convenient butt of our groping, urgent, craving to “explain” all that the child does. The problem of the absentee parent—of the “home” as little more than a dormitory—of the actual, physical, dissipation of this group—is not peculiar to our area but is seriously accentuated by certain local factors. Again, statistical treatment is difficult. Slightly over 68 per cent of the men in the suburban area have their work in New York City*—precluding any evening contact with the younger children in the family. We have been slowly forced to realize that much of the so-called “recreational” life of the father and the rapidly growing club and social activities of the mother has a motivation which is largely sociological—dependent upon the necessities of the intense competition which so compact and so highly organized an area, entails.* Without, then, any reference to those more personal, emotional, factors of family disintegration which are perhaps in no way

* Compiled from records in the Board of Education office from two schools typical of the area. 1236 children involved. We have considered this an adequate sampling—for, as above, if there are errors they are not conceivably large enough or persistently enough on one side, to modify the startling character of the results. The actual percentage in this study was 68.4.

* With childlike yet, we hope the reader will admit, commendable naiveté we argued, coaxed and stormed about these “recreational” factors for two years before beginning to realize that they are essential elements in business success. Nothing is more arresting than the realization of the intensity of the struggle to “keep up”—in these neighborhoods which so seem to radiate “comfort.”

peculiar to this metropolitan district we have found that the relatively large distances, the centralization of the business area and the "extra-curricular" social duties involved in the consequently intense competition—have acutely raised the problem of the vicar for the parents.¹⁰ As a general proposition in psychiatric therapy it remains with us a baffling and unanswered difficulty—meaning, instead, for each child unsatisfactory parent substitute adjustments as the particular situation demands.

Foregoing any discussion of possible social modification of temperament, certainly any cultural development that favors the vicarious expression of emotional drives presents a more favorable milieu for the introvert—granting, for the moment, a more extreme view that it does not foster introversion. There would be less agreement with the proposition that the moderately extroverted child represents the more healthy type. Dr. White,¹¹ for instance, has asked if it is not perhaps better that the child live his criminal tendencies vicariously—at the movies. The case material presented here demands a negative answer—largely because this mode of expression is forced upon the child by a situation which demands also the vicarious expression of all the other emotional drives.¹² Within a limited area the doubling of the population with little increase in play space plus many of the inhibiting factors of a rapidly growing apartment vogue has made expressions involved in spontaneous and wide-flung play—practically extinct—using as our measure the actual vocabulary of the children. Nor, personally, do we look upon the fevered, compensatory, growth of the summer camp idea

¹⁰ Should we immediately concentrate our efforts on scout leaders for instance—or on the rangers, an international organization for much younger children which, interestingly enough, originated in Montclair? And if so, should we train these, and school teachers, as parent substitutes or, after all, does the growing child need to have a parent?

¹¹ In reference given above.

¹² For instance, what of mental health can be found in the horrible experience of Provincetown harbor? A nation sat at its dinner table or bantered its trivialities as the news of the submarine came from the radio. The whole gamut of emotional experiences are daily presented to us with two challenging factors—(1) we can really do nothing to adequately respond to the stimulus; (2) at least in the case of the more tragic situations, we have contrived to receive the stimuli under conditions which "force" us to maintain a general emotional tone absolutely foreign to the one incited.

as other than a schizoid type of solution. In 1923 an English psychiatrist giving as his basic criticism of mental life in Eastern United States said "you have no small gardens."¹³ The whole question as to the relationship of our culture to temperament is intriguing and challenging"—here we present but a specialized aspect dependent upon the terrific centripetal forces involved in this area.

The modern psychiatrist is interested in the patient and his mental outlook as an integrated entity. Fundamental in his theory is the close interrelation and interplay of the satisfactions of earning, learning and recreation. This integration is becoming more and more difficult throughout the nation—but especially so in a large metropolitan area. Standardized production—means standardized producers. Immense corporate organization—means individual stratification. Recreation is expressed in massive stadia or distant links. With us work, play and schooling are three distinct adjustments—each to be planned with sufficient intensity in its allotted period to "last over." There is a ready market in the factory for the automaton and in business for the person who "can fit into an organization." The child, boy or girl, entering this situation must become an automaton. If it be a normal child the intellectual and emotional cravings find their explosive expression outside of work hours. Thus the child is brought to court and then to the psychiatrist. The psychiatrist, individualist that he is, dumbfounds the world with the multiplicity of his theories as to what is wrong with the child—atavism, low I. Q., psychopathy, hydrogen-ion concentration, complexes, dynamic association, infantilism, etc.—not recognizing that it is precisely because the patient is average or usual or expected or normal that the difficulty has appeared. One day last fall I examined a feeble-minded 18 year old girl. Edna had been working at a punch-press for six months. At seeing that all her 10 fingers were intact I could not hide my surprise. Her reply was as spontaneous as it was profound—"It's only them that thinks that loses their fingers."

¹³ Dr. R. G. Rows in an address given at the Annual Meeting of the National Committee of Mental Hygiene, New York City.

¹⁴ The author hopes in the near future to undertake so much of a discussion of this question as our material justifies.

In conclusion we have no satisfactory solution. We, as others, continue to attempt individual adjustments as each child's problem indicates and, with pride, to point to this success or that. This paper is presented because psychiatrists of various schools are fairly in accord as to a few basic necessities in the mental life of the child and because in a large metropolitan area these necessities are becoming extinct. The solution will follow one of two lines.

(1) We may continue our present theory and continue to decry these sociological tendencies. This would involve either a series of fervid revivals or the construction of a true "social psychiatry" which would treat great groups as units.

(2) We might face the fact that great masses of people are living in violation of our most fundamental principles. This latter possibility would challenge us to the construction of a new psychiatric theory as to the basic necessities of mental health."

DISCUSSION

DR. HAMILL.—Could we hear a little further expression of just what the essayist means by referring to the family as one of the four fundamentals?

DR. WOODMAN.—As I gathered, the doctor in his thesis said that the children of his area are growing up without what we have regarded as the basis psychiatric need. I did not hear him say that the children of this more prosperous section to which I think he refers particularly were growing up into inferior individuals or persons who would not be of social value when they grow up.

I hope he will open up to us and outline, if he can, in a few words, within the limits of the discussion, what he thinks are the changes in our fundamental psychiatric theory that are demanded by the challenge of his district.

DR. DAVID H. KELLER (Pineville, La.).—I believe that the idea that the child has to have a fixed neighborhood in order to reach his maximum development is very appropriately stated in this paper. It isn't entirely a question of the family. The child has to have that sense of feeling that he

"The reading of this paper occurred on the day following the address of Dean Pound (*AMERICAN JOURNAL OF PSYCHIATRY*, VIII, 1928, pp 33-51). We took the liberty at the close of our reading, of suggesting that the psychiatrist has evolved an essentially individualistic theory as had the pioneers evolved an essentially "frontier" legal practice. As a changing type of population has made the legal theory an anachronism so it may be possible that the growing centralization of population groups may demand radical changes in our own theory.

belongs to a community, and unless the child remains in that community long enough to feel that he becomes an integral part of it, certain definite changes take place in the personality.

I have in mind a family of four that were forced to move frequently during the early school life of their two children, and where every attempt was made to develop those two girls into normal individuals. The fact that they constantly had to change their neighborhood and change their school life made a definite impression on their personality, in spite of the fact that the parents of these two girls did their utmost to supply them with a normal home. That is one of the things that is being gradually lost sight of in our modern civilization. While the home may be provided for these children and they may have intelligent parents still it is becoming harder and harder to provide the neighborhood for them and a school life that gives them the contact that makes them feel they really belong to the little community they live in.

DR. HAROLD S. HULBERT (Chicago, Ill.).—Isn't there another side to this picture? Don't children usually get along better as the families move into better neighborhoods? Isn't that the proper American ambition? Of course, it is normal for a child to play with his cousins, I mean by that persons of the same tribe. But this is a progressive country. When the families can move from the crowded parts of the city to the cheaper suburbs and then to the better suburbs, don't most children flourish? Isn't the doctor a bit pessimistic? He sees the ill effects only, for they are brought to him. Pathology is less common than normalcy.

The second question is, can he forecast adult psychoses on the basis of his juvenile clinic, depending more or less on the geography, the places where the people have lived?

DR. JANE KENNEDY (Minneapolis, Minn.).—Does not Dr. Plant consider it most important that they have the feeling of security in their own home in relationship between parents, in the sense of belonging? Is the neighborhood as important as the permanence of the relationship between the father and mother?

DR. KELTY.—I would like to ask a question. Does the speaker mean that the environment is going to take care of the child entirely without the home? I got that impression that the home life was not going to make so much difference. It seems to me the greatest unit for the child is the home.

The greatest example I know of is that of a child who moved from a small town to a large city. In the period of a year she became the vice president of the class which success was in a large part due to her home rather than to any training outside.

DR. C. P. OBERNDORF (New York, N. Y.).—I can corroborate what Dr. Plant says about the necessity to the child of the feeling of belonging to a family. About three years ago one of the orphanages in New York established a psychiatric clinic to help them solve some of the conduct problems

which they had encountered. There we found the feeling of "not belonging" to society and the feeling of not having a family played a very vital rôle in the development of many conduct disorders of the children. They felt in being orphaned they had been punished for something for which they were not to blame, namely deprived of a home by some process with which they had nothing to do, and put in charge of a parent substitute, the orphanage, which they found very impersonal, which gave no love. They reacted by an attempt to obtain from that organization everything they could and give as little to it in return as possible.

I might mention one hint not obtained from the experience of the orphanage, but from psychoanalytic practice, namely the origin of the feeling of not belonging to one's family. It is closely connected with the unconscious desire not to belong to the family, so that in the case of a boy, he dares to seek the love of the mother as a person outside of the family, which he could not obtain if he were a member of the family because of incest prohibitions.

DR. JOHN LEVY.—Dr. Plant's demand, as I understand it, for a stable environment in order to give children a feeling of security, has another side to it. I refer to the danger of inculcating certain group patterns which may be even more undesirable than the social phenomena to which he objects. Cultural patterns of delinquency may be all too stable. Children born into an environment, such as obtains on the east side of New York, 'follow the leader' into truancy, stealing, and sex offenses. The child who tries to get away from the norm of such a neighborhood has a mightily hard time of it socially. Conformity is all too easy.

In support of this point of view, I would like to refer to the work of Dr. Shaw, done at the Institute for Juvenile Research in Chicago. Dr. Shaw, in his study of juvenile criminality in Chicago, showed very conclusively two things: firstly, that crime has a geographic distribution and secondly, within the area of the greatest incidence of crime the majority of children had been through the juvenile court at one time or another.

DR. JAMES S. PLANT (Newark, N. J.).—The limitation which Dr. Bond so rigorously put upon the time of the paper has acted to give an impression of dictatorial and final statement when such has been the least intended. I hesitate to even touch upon the questions—many of which have long been, and still are, extremely controversial in my own mind.

In the first place, by all means may I make it clear that I am not a calamity howler. It is not a matter of arguing for one thing or the other. I have had the feeling over this five years and I got it so very strongly again last night that we are in many ways—in our philosophy—individualists as were the pioneers, and that we are not looking forward to a definite social change that is actually going on.* Whether this change is for better or for worse, I do not know. That is not the point in question. The fact is that there are great groups of children living in violation of all of the

* Referring to the address of Dean Pound.

principles which I brought to Essex County, and they seem to be getting along very well. There is something wrong somewhere, either with our theory or with the children.

Are these children inferior? Perhaps one of the most upsetting factors has been that these children do not appear to be inferior, in fact they appear to be fairly happy when I know, on the basis of all our theory, that they shouldn't be. No, the situation seems rather to be that which would have faced our early pioneers—in the matter of the law—could they have envisaged the situation in our urban population to-day. They probably, being human, would have predicted the early decay of the race—but, really, simply with their philosophy they could not *understand* the conditions which would develop.

The question as to what is meant by the family is difficult to answer. One of my first critical experiences was with a nine year old child in that suburban area—from what you would call “a very good family”—who used to softly creep half-way downstairs at night just to see his father. I mean, just to look at him. We have gone on from that, through various phases which I do not want to take your time to enumerate, to realize that the family is in actual, physical, dissolution. The father commutes to New York coming back home with all the problems of golf and such things—to a very large extent made necessary in his business competition. This is no demagogical tirade on the dissolution of the family. It is a matter of a social situation involving intense competition in a great group of people so closely tied together.

The paradox of psychiatry. I should like to go a bit further into this relationship of the psychiatrist to the lawyer. That involves about 40% of all of our cases. Our cases from Newark are, to a very large extent, court cases. I have the feeling that the relationship between the psychiatrist and the lawyer is not that between one who knows a great deal and one who knows very little about the people who come before him; but precisely the relationship of this individualist, this pioneer, this person who can only see the *child's* needs—to the person who, however imperfectly, has accepted the growth of *social* forces, metropolitan areas, and the same facts from that other point of view.* I can't in any way bring it out as well as Dean Pound did last night. The courts have certain attitudes which we psychiatrists are all going to come to when we develop a more real *social* sense. We may then handle these attitudes in a different way.

Does the frequent moving of families always produce this feeling of insecurity in the children? If it does there are often compensating factors to cover the symptoms. It is a tremendous factor in children who have in any way other problems and who can't feel that they *belong* in any certain place. Perhaps the most startling feature of this five year's work has been the realization of the restless, incessant migration amongst all the social

* The Speaker has developed this idea in full before the Mental Hygiene Conference of the Lehigh Valley on May 11, 1928. The address is being prepared for publication.

strata. As for the lower strata—that I saw and accepted before this particular piece of work began.

As to the corollary question as to whether the children should not find this security in the family, I hadn't meant in any way to say what should or should not be done. In this "suburban area" I am not talking about the City of Newark where we have the mothers away all day in factory work, and so forth. In the suburban area we are constantly running into a situation where the father is entirely out of the home as a competitive necessity, and where the mother is also leaving the home as a competitive necessity, because her social and club duties are so closely linked to the advance of the father in his own business.

Can I predict adult psychoses? Of course I can't. I don't know anything about that. Perhaps in another twenty years, as these children grow up, perhaps we can answer that. May I once again hit at this proposition of the calamity howler. I am not a calamity howler, I am not trying to say the conditions are worse than in the past. The conditions are different, and our psychiatry is not changing to meet the conditions.

Is the environment going to take care of the child in the future? I don't know, I know we are going through a change. I have gone no further than to feel that we must somehow along one of those two solutions change our psychiatric theory to meet the challenge of these changed conditions which are going to grow, whether we like it or not, or whether we can prove they *should* grow or not.

SOME OF THE MEANS FOR GUIDANCE APPROACH AND APPEAL IN THE PSYCHOSES.*

By RICHARD DEWEY, M. D.

In all medical practice today, emphasis is laid upon the fact that the whole individual must be taken into account. This is especially true in psychiatry. We have the *total personality* to deal with; not only the somatic, but the cognitive, the affective and the conative individual.

In addition to the outward signs and symptoms we need to understand how the individual before us today is "conditioned" by all that has gone before. His life history and innate qualities and characteristics must be studied, also his own attitude toward our therapeutic effort is important for good or ill, whether an attitude of resistance, or of coöperation. We must "get next," if you allow the expression, just as far as possible to the integrated personality. In all ailments the same thing is true, but especially in the neuroses and psychoses.

Taking up now the first appearance of the patient upon the institutional stage (we may call it a stage since "all the world's a stage") two things are important, the patient's personal reaction to us and ours to him; first impressions are apt to be lasting in their effect. The admission to the hospital may be termed an "initiation." It is not like the initiation to any secret order. It is an open initiation, but there are ceremonies connected therewith and many things to be learned which are still unknown to him and to us.

The manner of his reception has an important future bearing. We have before us a comparative stranger and a disordered personality: furthermore, our patient is often one who comes unwittingly and unwillingly into our charge; as is frequently true in an institution for mental diseases. Of course some patients are so introverted or so extraverted as to be for the time quite unable to react to any immediate realities, but there are many who are respon-

* Read at the Eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

sive, who will be appreciative of interest shown, or repelled by seeming indifference. The patient may feel that he is among friends or, on the other hand, surrounded by cold shoulders. First impressions may be very lasting for good or ill. I have known patients who "fell in love" with the place "at first sight" although they came prepared to "hate and despise." We may not often be "fallen in love" with "at first sight" but such an outcome is desirable. Two things will contribute greatly to it; a full case history giving the important antecedents, and a genial reception. If the manner of doctor and nurse tells the patient that he or she is really only one of scores or hundreds of others and that they are engaged in a soulless routine, the reaction may be one of indifference or worse. As before stated, we need a comprehensive anamnesis; the facts of heredity, birth, childhood, adolescence, adult life, married life, if any, and married life of the parents, as well as the reaction to these situations. This with our own findings of present condition forms a key that will be an "open sesame," a map for your guidance to the interior. With this the true psychiatrist may lay siege to the heart of the patient's mystery, as a lover to the heart of his mistress. Such a history may not be always available but with the increasing agencies of research, the extramural clinics, assistance of social workers, progress of Mental Hygiene, it may be often secured. And it is the motive of the present paper to consider ways and means for bringing the patient *en rapport* with his or her medical mentor and with the environment. This may often require much resourcefulness, but the attitude of the patient is so important that it is worth an earnest effort.

The arrival of the patient is to him a critical period, but to the various assistants it is "all in the day's work" and it is well to consider the impression upon a patient. All is most familiar to us but new and strange to him. Let us put ourselves in his place. This every day event to us is an epoch in his life. Every human being is to himself infinitely important and every other human being, high or low, may well recognize that importance. The old Latin quotation which the *Journal of Mental Science* carried upon its title page for years suggests itself in this connection—"Nihil humani a me alienum puto." We cannot ignore the unity of human nature in its infinite variety and at the same time attain to coöperative goodwill.

Our patient is invited to a certain ward or building, his belongings are inventoried, taken in charge, money and valuables, if any, sent to the office. They may be things of little or great value, but they are his own. Perhaps, without saying "by your leave," we give him baths and medicine, we feed and clothe him. It may be that no explanation is given. We know why we do things, explanation seems unnecessary, but might count for much with the patient. The people the patient now meets, his fellow inmates, are not like those he has been accustomed to, he may himself deviate from the normal with various phantasms and hallucinations, but the abnormality of others about him may be very disturbing to him. Beside this, in the new surroundings as we know too well, an almost universal discontent prevails, inseparable from the involuntary internment, and this often acts as a barrier. Our guests, both the newly arrived and long detained in custody (as we occasionally hear), are inclined to "cuss" the custody.

Our objective is the working of the patient's mental mechanisms. The newly arrived one may be wearied and confused by his involuntary journey, perhaps he should have a little period of rest and some refreshment. We often hear the way to the heart is through the stomach. In this way we may later gain a more ready access to the processes of thought and feeling, may gain a better understanding.

I would like, in this connection also, to call attention to the number of apparently hopeless cases which experience has shown can be restored, and I will here recite some facts about recovery of chronic cases which recently caused me some surprise. We all know personally of recoveries that have rejoiced us after many chronic years. I know not if it is so today, but those of my earlier generation will admit that we were prone to call patients chronic after one, two, three or at most four years' duration of their malady. One reason for this view, as it seems to me, is that we were perpetually besieged by applications for admission to the institutions far in excess of capacity and we naturally gave precedence to the recent cases where a choice had to be made. And we almost insensibly came to look upon three or four years' duration as meaning chronic and hopeless. It almost became a habit to take incurability for granted. Was not this attitude due more to the

hopeless overcrowding than to actual conditions of the patient? Let me quote here statements which I recently found in an address delivered in 1922 by Sir Robert Armstrong-Jones, formerly in charge of the great London Asylum at Claybury. Dr. Jones, in an address on the subject of "Hopefulness" to nurses at the York Retreat spoke of a patient he had especially labored with who recovered after fifteen years. He recorded recoveries known to him, one after twenty years, many after five years, one each after 21, 28, and even 32 years. He stated recovery percentages of patients over 60 years of age were 10 per cent, while only 6 per cent recover of those under 16. He also quoted Sir George Savage's remark that it was "better in this respect to be 60 than 16." These late recoveries were doubtless of the so-called "functional" psychoses but are we not today finding recoveries or long intermissions even in paresis by the newer methods of biochemistry? Referring to our own country and to the recent United States census of mental disease, I find that in 1922 there were 137 patients discharged recovered who had been over ten years in the various institutions and 648 recovered who had been *over four* years under treatment. Hence we may do well even to err with the optimist rather than take a pessimistic view. Though our efforts be lost on many inaccessibles, one case of readjustment and reëducation is worth many trials and failures.

Let me give, in barest outline, a case illustrating how much first impressions count when a patient comes unwillingly.

A girl, twenty-nine, of unusual attractiveness, came to a sanatorium desperately depressed from a broken engagement. Her mind had become unbalanced but she scouted the idea of mental trouble. She would not consent to go anywhere except to a convent for life. She was an heiress to a considerable fortune. She had been courted assiduously for three months at a fashionable seaside resort by a man ranking high in the diplomatic service. The pair had been reported engaged and their social standing caused the engagement to be widely known and remarked upon. Then her admirer, knowing marriage would end both his diplomatic career and his income, had sought release, thus jilting his proud and beautiful fiancée.

She was a girl of neurotic inheritance, strong physique, brilliant mind. As a child had had a goiter, now had a fullness and throbbing on right side of her neck. There was a fine tremor of hands, no exophthalmos, no tachycardia, there was a neuritis of right arm and shoulder. The monthly menses had failed to return for two months. She had complained con-

stantly of her eyes, insisted that she was going blind, though vision on examination proved normal. Thought constantly of death. Had attempted suicide. She now rationalized her situation by developing a series of persecutory ideas and fancied she could see, in all that had happened to her, a plot for her ruin. In her distraction of mind, she explained the situation as follows: A near connection of her family, known for his cunning and crafty dealing, and being anxious to inherit a share of the wealth which it was known her millionaire relative had devised to her, had conceived the idea of ruining her character and causing revocation of the will. It was now clear to her that this man had plotted to bring her into the power of her pretended lover. Suddenly the question arose in her mind, suggested by her amenorrhœa, could she be *enceinte*. This seemed impossible; if such were the case, she could account for it only one way, that she must have been subjected to hypnotic influence, that in an unconscious state of hypnotic sleep she had been overpowered. She now found innumerable circumstances to support her delusions. Her pretended lover had cast this spell upon her—she recalled his irresistible approaches, which had seemed only the ardor of a devoted suitor, but were intended not only to accomplish her ruin but to disgrace her in the eyes of the world and to deprive her of her inheritance. The horrible thought of becoming an unmarried mother had driven her to the family physician. He refused to relieve her and she could now see that he was also in the plot. He had assured her that she was not in the state she supposed; she refused to believe it; but finally convinced, she insisted some deadly disease had been communicated to her which would soon prove fatal. She scouted the idea that her mind was affected, felt insulted at such a thought, and dwelt upon the idea of death which would be a welcome end to her trouble.

Now reviewing these entire circumstances, the director at the sanatorium was impressed with the "reasonable unreason," so to speak, of this patient's deluded fancies; all she alleged *might* have been true. It was a very mild delusional state. When the patient said, "Now, Doctor, I suppose you will join these people of mine in pronouncing me crazy." "No," said the doctor, "I will never apply the word to you. You have a mild psychosis. Your health is impaired. You must have rest. That is all you need. You shall be a guest of my wife and myself for a little while in our home." To this the patient agreed and from that day steady convalescence set in. In a few weeks health was fully restored. This happened twenty years ago and today the patient is a happy wife and mother of three grown-up children.

I have not found in formal textbooks of instruction for nurses any explicit discussion of means and methods for the successful "initiation" of the patient, so to speak. The old German maxim "*Anfang ist schwer*" applies to this period when we are becoming acquainted with each other. I believe there should be a short chapter in our nurses' books of instruction containing some con-

crete, systematic suggestions as to appropriate thought and action toward the newly arrived patient. This would be useful for guiding conduct and conversation between nurses and patients into agreeable channels.

In conclusion I would advocate an attitude toward the patient of mutual understanding, adapted to each individual instead of left to chance. A personal interest and respect; the clearing up of things not understood by the patient, good natured tolerance of likes and dislikes, indulgence to harmless fancies, thus overcoming the obstacles inseparable from enforced internment which act as barriers between patients on the one hand and doctors and nurses on the other in the process of readjustment and reeducation. I know such conditions as this already exist in many hospitals and with many individuals, and only seek to contribute my mite toward making them more general.

To attain this attitude involves a careful consideration of each personality and the adoption not only of humanitarian methods, but of proceeding upon psychobiological lines, dealing with the primary instincts, overcoming and tranquilizing impulses of fear or anger, and encouraging the adaptive, the imitative, even the play instincts, tactfully applying the invaluable resources of occupational therapy, contributing to habit formation in useful directions.

We have learned much of the advantages of child guidance. I believe that what we might call "adult guidance" may have a field. Our patients are often immature, must be treated as children by adopting the wisely combined firmness and indulgence children require. Patients may even learn to deny present impulses for future rewards—a species of sublimation.

In my earlier days there was a tendency for the willing workers among the patients to go too far in the drudgery of the house and wards. Such good natured, obliging fellows wholly destitute of self-importance, if not held back, would, unconsciously to themselves or to their superiors, become sort of serfs or peons not having the *amour propre* with which most of us are sufficiently endowed.

Finally I may mention what seem to me to be the chief *desiderata* for attainment of best results.

First: Hospitalization (from medical side). Fulfillment of all requirements of scientific psychiatry, especially a *life-history* covering heredity, prenatal conditions and successive life periods; reactions to these conditions and records of progress.

Second: Domestication (from human side). The adaptation of patient to his environment and environment to him. Since mental disease deprives its victims of home life, secure to them in the institution such conditions of home life as are possible and are consistent with the psychoses from which they suffer.

Third: Unite in administration the best skill of both psychiatry and philanthropy!

DISCUSSION.

DR. HERMAN OSTRANDER (Kalamazoo, Mich.): Dr. Dewey's paper ought to be discussed, and discussed freely, particularly by those of us who run institutions, because he has brought up points that we don't practice thoroughly enough. We ought to emphasize the fact that we don't treat insanity. We don't treat mental diseases. We treat people who are insane, and the world is full of different kinds of people, and the proper treatment of such persons requires a proper understanding of the various phases of human reaction.

In most states I think we begin wrong by the initial proceedings in committing the insane to institutions. They are notified that they are incompetent. A paper is served from the court to that effect, that they are incompetent, they are insane, and should be taken into custody and placed in institutions. It seems to me there could be devised a pleasanter way of bringing that news to the patient who is about to be committed.

In the second place, in a great many of the institutions, the method of conveying patients to institutions is entirely wrong. They are turned over by the court to officers of the law oftentimes. It is true in a great many instances they are turned over to members of the family, but very often it is officers of the law.

Dr. Dewey can recall occasion after occasion when patients have been brought in in handcuffs, tied up, who should have been brought without any restraint whatever, and would have been so brought in if they had been accompanied to the hospital by the proper persons. I know there are some states that send nurses after patients instead of leaving it to the courts to decide who shall accompany them.

Another point he brought up that I want to emphasize is that every insane person, or almost every one, as he or she enters the portals of a hospital for the insane, needs, and needs badly, a best friend, a big brother, a big sister, someone who will approach him or her humanly with human sympathy, tell where they are, talk about the institution, and how to do things, and follow that up and keep the patient feeling at home.

Another point the doctor spoke of that should be emphasized is to have the surroundings of a homelike nature that will not frighten the individual, that will not make him confused and distressed in mind more than ever, but will make him feel at home as much as possible. That can be practiced to a much larger and greater extent than is practiced in most of our hospitals for the insane.

We are apt to consider, because patients are repulsive in their habits, are restless, noisy, violent, use bad language, and things of that kind, that the case is hopeless, and that the surroundings don't make much difference to them. As a matter of fact, I know that it does. I don't know of anybody who is so far gone in his mental condition, in his mental disease, in whom there isn't some of the cultural and some of the ethical left that can be appealed to by proper treatment and proper surroundings. I am sure of that because I have demonstrated it even in our disturbed wards. Dr. Dewey proved it in Kankakee. He used to fix up places that were attractive for the patients, no matter how repellent or repulsive the patients were. It invariably has its effect on the patient and always will. A lot of us seem to think that just because a patient is disturbed and upset and noisy, and so forth, any kind of surroundings will suit him.

One could discuss the outlines that Dr. Dewey has presented for a long time, Mr. President, with benefit.

DR. CLARENCE O. CHENEY (New York, N. Y.).—Mr. President, as one of the younger members of the Association I feel that I should not be satisfied to let this opportunity go by without expressing appreciation to Dr. Dewey for this wise advice derived from the wealth of his long experience. Those of us who have been trained in more recent years, perhaps at times have the feeling that we have a more scientific aspect toward the treatment of mental disorders, but I think in many ways that may be a very distinct disadvantage in that we may be inclined to look upon the patient more as a case to work on than as an individual to be treated.

I am very glad to have recalled to me the importance of receiving patients properly in the hospital. Those of us who have several thousand patients in our hospitals, with large numbers of admissions, are inclined, I feel, to lose the humanitarian, personal touch, and the members of our staffs also are inclined to lose that touch, unless we have recalled to us occasionally, as Dr. Dewey has done today, the importance of the personal interest and its beneficial result.

I shall be very glad to keep these suggestions in mind and emphasize the importance of their being carried out in our hospital. I thank Dr. Dewey for his suggestions.

PRESIDENT MEYER.—Is there any further discussion? For more than one reason I am particularly grateful to Dr. Dewey for coming on this occasion: in the first place, the personal reasons with which probably most of you are familiar, from the remarks that I made about "thirty-five years ago," but

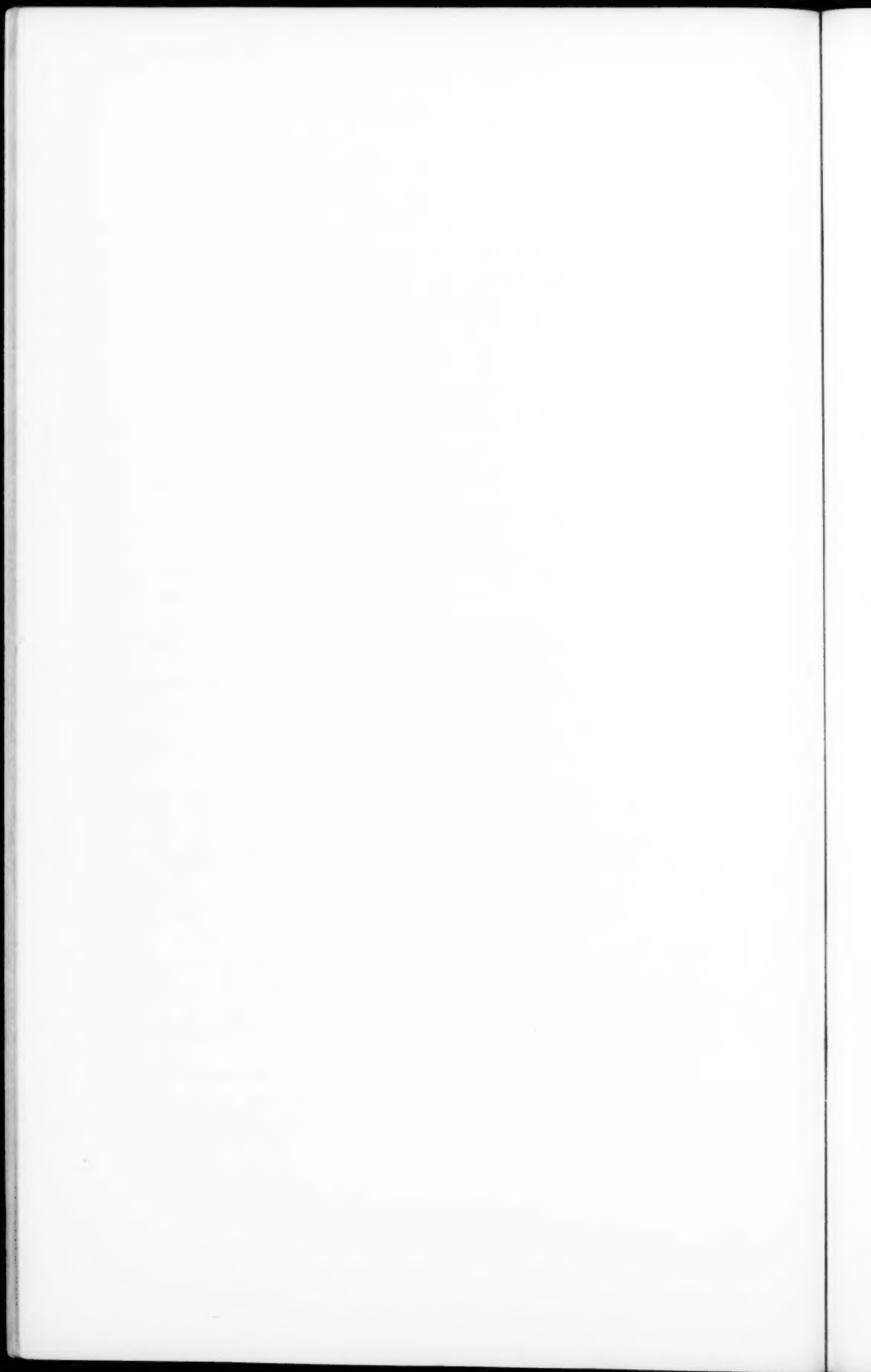
also for the choice of a number of points in the paper. Among those, I would emphasize particularly that which has been mentioned by Dr. Os-trander, and by Dr. Cheney, namely, the tremendous responsibility involved in the way we receive patients in hospitals, that, unfortunately, to this very day are looked upon as places to be dreaded. Our hospitals inflict upon the patient a good many inconveniences, the nature and importance of which the patient does not understand and which require explanation.

The second point is that Dr. Dewey has recalled something to us which we have not heard discussed very often of late years, namely, the so-called late recoveries. When I think of the fact that this Association not so many years ago made it mandatory to look upon a case as chronic after a definite lapse of time, and that two years, at any rate three years, was the very limit, I cannot help dreading what it must mean to the general public to have to stay in a hospital for the time necessary for readjustment in many cases.

The work of Dr. Petré in Sweden, who wrote his thesis on late recoveries, has always been one that has intrigued my imagination. I have wondered what it is that, under conditions of practically no change of care, produces after ten or fifteen or eighteen years a rallying of the social and life instincts, producing the restitution that can be described as late recovery. So I am very much indebted to Dr. Dewey for presenting to us this statement of basic common sense and basic thoughtfulness about the beginnings of hospital care and about the possibilities of hope even in prolonged hospital care.

Is there further discussion? If not, I should like to call on Dr. Dewey.

DR. RICHARD DEWEY (La Cañada, Cal).—I don't know whether there is anything that especially requires a reply.



BRIEF REPORT OF THE USE OF SODIUM LUMINAL IN MENTAL AND NERVOUS DISEASES.*

By LAUREN H. SMITH, M. D., PHILADELPHIA, PA.

The following study of ninety cases was made in regard to the efficacy of sodium luminal as a sedative and soporific, particularly in excited and active mental patients of the Iowa State Psychopathic Hospital and the Pennsylvania Hospital, Department for Mental and Nervous Diseases. No cases of epilepsy were included in this series. The patients were both men and women, forty-six females and forty-four males. The ages varied; one was a girl of eight years, and two were men of sixty-two and sixty-four. The two groups of the commonest ages were around twenty and forty years of age, since most of the series was made up of manic-depressive depressed and involutional melancholia cases, with the usual scattering of ages above and below in both groups. The cases have been grouped according to their clinical diagnoses, and have been taken up and compared briefly in summary under their diagnostic headings.

METHOD OF ADMINISTRATION.

All medication in this series was given by oral administration in tablet form with a small amount of water. In addition small doses of sodium bicarbonate were given to prevent gastric irritation if any indication of this was present.

TABLE OF AVERAGE ADULT DOSAGE.

Grains $1\frac{1}{2}$ to Grains III: As a sedative and soporific in sleepless unagitated or non excited semiactive cases.

Grains III to Grains IV SS: As a sedative and soporific in agitated sleepless cases (Sometimes Grains III for 2 doses 6 hours apart.)

Grains III in A. M. Grains IV SS in P. M. As a sedative and soporific in excited, noisy cases.

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

Better results were obtained with a same dose by splitting it and giving it in two-hour intervals. Lesser amounts than listed in the table were found to be valueless; greater amounts were rarely indicated and effective only in exceptional cases.

SUMMARY OF CASE TYPES.

Miscellaneous: Here were twenty-one cases, a group made up of those diagnosed psychopathic personality, hypophrenia, conduct problems and other non-psychotic cases. The indications were those usually associated with insomnia, namely, restlessness, anxiety, lassitude, malaise and poor physical condition. Good soporific effect resulted with the dosage from grains $1\frac{1}{2}$ to grains III.

PSYCHONEUROSES.

Seven cases were found with the indication being insomnia. Good sedation resulted in all, and better hours of sleep in six (6).

ORGANIC GROUP.

In this group were the following: One case of acute alcoholic hallucinosis (with a poor result from using the drug); one case of psychosis with cerebral arteriosclerosis with no result; six cases of paresis, restless, agitated, noisy and combative types, with good sedation in five cases, good soporific effect in four cases, and one with little or no effect (one case of the parietic group had a stuporous type of slumber); three cases of encephalitis, two with good results, one with no results; two cases of senile dementia, neither with good results.

MANIC-DEPRESSIVE PSYCHOSES. (Including Involutional Melancholia.)

There were fifteen cases of manic-depressive, depressed, of which only one presented no effect. All of the remainder were much benefited. Likewise with ten cases of involutional melancholia, only two did not show the desired results. In eight cases of manic-depressive, manic, a poor result occurred in five, and only three were at all as desired.

DEMENTIA PRÆCOX CATATONIC EXCITEMENT.

Eleven of fourteen agitated, sleepless, destructive cases were quieted. Ten had satisfactory slumber. Three cases showed no effect of the larger doses.

UNDIAGNOSED PSYCHOSES.

In six cases, all overactive, noisy and occasionally violent, good results were found in four, but not any in two.

CASES GIVEN HEAVY DOSAGE.

Case (1) (not a personal observation) received sixty-four and one-half grains in all, in one hundred hours, with no bad effects. Twenty grains were given within eight hours. Only three hours' sleep resulted, and then the patient was awake and noisy again.

Case (2) slept eleven hours on $7\frac{1}{2}$ grains.

Case (3) slept ten hours on $7\frac{1}{2}$ grains and was semi-stuporous for twenty-four hours.

Case (4) Alzheimer's disease—received $4\frac{1}{2}$ grains morning and night for three weeks and showed no bad effects. Excitement returned when medication was discontinued for three days, and subsided when it was resumed.

Case (5) received $4\frac{1}{2}$ grains t. i. d. for eight to nine days, and developed an external rash and other toxic symptoms.

UNTOWARD RESULTS.

Cases have been cited in the literature pointing out toxic symptoms resulting from luminal administration. One death following a single dose of fifteen (15) grains has been reported. There have been many cases which presented symptoms of muscular incoordination, dizziness, confusion and gastric irritation following prolonged administration. In the above series, mild symptoms of such type have been seen with doses as small as three to four and one-half grains. But these have not been the rule, and have occurred in only two cases out of ninety. Only two cases of skin rash were found after the drug had been given daily for over a week in quite heavy dosage ($4\frac{1}{2}$ grains daily). There were, on the contrary, many cases in which as heavy a dosage was given for a longer period of

time and in which no toxic symptoms ensued. The number of cases showing toxic symptoms as cited, has been few, seven in number, and the doses have often been small as well as large. It follows that there are many cases which have received the estimated optimum dose daily, over many weeks' duration, and have presented no untoward reaction whatever. Also, there are eight cases in the series in which a massive dose was used and in which practically no toxicity resulted. As a result it appears that the cases showing bad reactions are more likely to have them on account of an idiosyncrasy, than on account of the toxic or severe effect of the drug itself. On this basis the writer believes the drug can be used more freely than has been believed commonly. However, *first*, the administration must be started with a small dosage (gr. III) (average adult), and the individual resultant action watched; *secondly*, in continuing with a daily dosage in the more active cases, an observation should be continued especially for cumulative symptoms (gastric irritation, skin rash, and dizziness). If good physiological results are obtained with the first two or three doses of the average amount, it is felt they may be continued. If needed, a heavier dosage may be used within reasonable limits, providing no contraindicating features appeared at the first administration.

DISCUSSION.

It is known that this drug, being phenobarbital, has a phenyl radical plus barbital (or veronal). This phenyl radical may be the element responsible for the skin rash found in the cases showing toxic symptoms. On this supposition the precaution has been taken not to give the drug to cases having active or subacute kidney lesions or damage. If irritant to the gastric mucosa (which has been found clinically), it must also be irritant to the more delicate renal cells, as its point of maximum excretion is in the urine. Cumulative tendencies must be at a minimum. Barbital does not have a tendency to cumulate. Further, we know that epileptic cases using luminal show no cumulative effect, even after extended months of usage. In fact, they necessarily need to have the usual dose increased slightly after some months of use. Therefore a tolerance, or at least non-cumulative action, takes place. One German observer reports that

"in some patients minimal doses will suffice to produce marked dermal symptoms . . . there exists great degree of variance in the susceptibility of various patients to luminal." It was found that in an occasional case a tendency to constipation occurred after prolonged administration. A mild gastritis, also, was present in a few cases. This did not tend to happen if sodium bicarbonate was given in conjunction with the daily dose.

SUMMARY AND CONCLUSIONS.

(1) Luminal sodium is an efficacious sedative and soporific in mental and nervous disease cases, particularly in those which contain elements of agitation, anxiety, various degrees of overactivity, and extreme insomnia. Its use is not as much indicated, however, in those cases having marked affective reactions of the hyperactive and elated types.

DEGREE OF EFFICIENCY.

90 cases	{	73 showed good sedative effects.
		39 showed good soporific effects.
		4 showed transitory sedative effects.
		11 showed poor sedative effects.
		5 showed poor soporific effects.
		7 showed untoward results.

(2) Susceptibility of patients to this drug varies markedly. Minimal doses produce toxic symptoms as well as extreme massive doses; toxicity is not common, but idiosyncrasy may be present in more cases than usually expected with other drugs used for similar purposes.

(3) The dose given should ordinarily range from one and one-half grains to four and one-half grains for sedation and securing slumber. Larger doses may be given cautiously if the reaction of the patient to smaller doses has been studied.

(4) Indications by clinical syndromes:

1. Manic-depressive, depressed.
2. Involutional melancholia.
3. Dementia præcox excitements.
4. Anxiety states.

(Note the symptoms these states have in common.)

(5) Contraindications:

1. Gastritis.
2. Nephritis.
3. Psychoses with emotional states and activity "above" that of normal.

(6) No value is found to be present that would indicate the use of this drug in place of hydrotherapy or allied measures which would otherwise give proper results with these types of cases.

DISCUSSION

CHAIRMAN COLLIER—Dr. Smith's paper is open for discussion. Luminal therapy is something that interests all of us. I would like to ask Dr. Smith if there was any use of the bromides with the luminal?

DR. SMITH—No, purely the luminal administration.

A MEMBER—I would like to know if luminal has any advantage over allonal?

DR. SMITH—Allonal was not used in this series at all. I have used it rarely on very similar cases, but found after using perhaps one or two tablets of allonal the results were a little bit too pronounced in some ways. Perhaps two tablets have given good results in a very few cases. I know of one case however where two were given and then a third tablet given a few hours later, and a very deep stupor resulted. Fearing the results of that and not knowing much about its effects otherwise, we practically discontinued the use of it.

THE DYNAMICS OF SCHIZOPHRENIC REACTIONS RELATED TO PREGNANCY AND CHILDBIRTH.*

By GREGORY ZILBOORG, M. D.,
Bloomington Hospital, White Plains, N. Y.

The problem of post-partum mental disorders is almost as old as medicine itself. Hippocrates, Celsus and Galen, to mention only the most outstanding personalities of medical antiquity, all observed post-partum psychoses. The very antiquity of the problems explains perhaps the persistence of the tradition, which considered the post-partum psychoses a specific clinical entity produced by specific causes. Hippocrates considered that the bleeding of a nipple of a woman recently delivered of a baby was an ominous sign pointing to a possible onset of mania: the milk of the woman being suppressed, a mental disorder was in the offing. This view had established itself as such a strong tradition that twenty-three centuries later we found Esquirol earnestly presenting the clinical evidence for and against it. Esquirol himself doubted whether the bleeding of a woman's nipple could serve as a forecast of a mental disorder, but he was inclined in part to follow the ancients and would not deny entirely the possibility of a post-partum psychosis being caused by a disfunction in the secretion of milk. In this attitude he partly reflected the traditional view according to which a "puerperal psychosis" was caused by the stoppage of the normal secretion of milk, the latter being directed to the brain instead of to the breast ("*per lactis migrationem ad cerebrum*"). It was believed for some time by writers of the century preceding Esquirol that between the tenth and twelfth days after childbirth deposits of milk formed in the brain, thus either compressing or distending the nerve fibers and causing a psychosis.

The subject has always been in the minds of those who were interested in psychopathology and towards the middle of the

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

XVIII century it appears to have been popular enough to serve as a topic of a thesis submitted in 1745 by one Berger to the faculty of medicine in Göttingen in fulfillment of the requirements for the degree of M. D. Berger's thesis was entitled: "*De puerperarum Mania et Melancholia*." As seen from the title, Berger observed that childbirth may be followed by various types of psychoses, which may be found independently of childbirth; yet the tradition was too strong and observers continued to look for specific causes which would make the puerperal psychoses a separate clinical entity; true, the highly speculative views, like those of Daniel Sennert (1572-1637) who believed that puerperal mental disorders are caused by vapors arising from the uterus to the brain, were more or less discarded towards the middle of the XVIIIth century in favor of more tangible physiological concepts, yet little progress was made in the solution of the problem. In 1768 Planchon related the psychoses under consideration to suppression of milk secretion and to the suppression of the lochial flow. Rasher in 1784 in his "*Dissertatio de mania et melancholia puerperarum*" expresses in the main the same views. Early in the XIXth century Levret even thought that he observed particles of milk in the brain of a woman who died while suffering from a puerperal psychosis, and Esquirol in 1816 quite earnestly discussed the significance of the fact that in some puerperal psychotic women who came to autopsy no milk was found either in the brain or in the abdominal cavity. Esquirol believed that the suppression of lochial and menstrual flows was a causative factor in the development of puerperal mental disorders.

It was not until the middle of the XIXth century that an authoritative statement was made (Marcé) asserting that a puerperal psychosis was no separate clinical entity, but this assertion appeared almost as ineffectual as that of Boerhaave (1668-1738) who had insisted 150 years earlier that puerperal mental disorders were not a clinical entity.

Since Marcé (1852) an enormous literature has gradually accumulated dealing with every aspect of the woman's psycho-physiological reaction to pregnancy, childbirth and lactation, but not until the last four or five years did the opinion begin to crystallize that "puerperal psychoses" like all other psychoses are caused by a multiplicity of factors, that there is no separate clinical entity

which can be described as a puerperal mental disorder and that pregnancy and particularly childbirth may give rise to purely functional psychoses which are psychogenically conditioned.

The present communication offers a few considerations in addition to those which have been outlined in two previous communications dealing with schizophrenic reactions to childbirth.*

II.

The conclusions of the two previous communications are here briefly summarized.

Only the schizophrenic reactions were studied. These are the most numerous amongst the post-partum psychoses—about 50 per cent. Women who succumb to a post-partum schizophrenia have, as a rule, reached the middle, but more frequently the end of their third decade of life and quite frequently are in their late thirties. They all show a predominance of schizoid characteristics and from the point of view of libido development they appear to have carried over into adult life anal libidinous attitudes and to have never reached the so-called vaginal stage of development; they seem to have been arrested in their growth on what Freud terms the phallic stage; hence they are all chronic masturbators and sexually frigid; they are potentially homosexual, their homosexuality, as a rule, not coming to the fore except in the psychosis. It was found that they had not outlived the Œdipus phase of their psychological growth and that their unconscious clinging to the Œdipus situation was intimately interwoven with the unconscious desire to belong to the male rather than the female species; hence they appear in part to identify themselves with their fathers and in part to harbor a revengeful feeling because they are not male. In other words, a woman of the type under consideration is found to labor under the pressure of a severe penis envy which is combined with sadistic tendencies directed towards men; this attitude, which Abraham called the revenge type of the female castration complex, makes the woman seek little or no contact with men; hence the women, who later developed post-partum schizophrenias, were found to have married late (between 25 and 35) and usually to have mar-

* Zilboorg, Gregory: "Malignant Psychoses Related to Childbirth," *Am. Jr. of Obs. and Gyn.*, and "Post-Partum Schizophrenias," to be published in the *Journal of Mental and Nervous Diseases*.

ried men whom they had known since late adolescence or by whom they had been courted a very long time; if the patient has married in her early twenties a history of compulsion on the part of one of the parents or relatives is usually found.

Being consistently frigid, the majority of the women show a significant momentary sexual awakening just previous to the onset of the acute phase of the psychosis. Some time after childbirth (the period varies from a week to five or six months) the woman suddenly insists on intercourse (for the first time since marriage); she may then experience her first orgasm but soon afterwards she develops an antagonism towards the husband, this antagonism not infrequently culminating in an attack upon his penis; the revenge coming from penis envy having thus reached its peak the woman sinks into a schizophrenic state which is represented by a variety of reactions: catatonic forms, severe schizophrenic excitements, paranoid types, etc.

Characteristically enough the women who develop post-partum schizophrenias, like the women who develop other post-partum psychoses are mostly multiparæ; there appears to be a sort of a latency period between the pregnancy which is undergone with impunity and the pregnancy which finally results in a schizophrenic psychosis; this period is usually from three to ten years long and is marked by the woman's more or less definite withdrawal from domestic interests; she acts as if unconsciously driven to divest herself of her feminine rôle in life and to assume a masculine attitude—an attitude which, as Abraham pointed out, is not infrequently met with in women laboring under the difficulty of the castration complex.

Another feature of great importance is that a prominent sense of guilt is found seldom, if ever, operating in post-partum schizophrenias. The women who are nursing revengeful feelings towards men on account of a severe penis envy appear to consider themselves (unconsciously) more slighted than guilty; the absence of a male organ which they so keenly regret, they seem to consider a sufficient punishment (through castration) and therefore they act as if they had already expiated their sinful tendencies (*Œdipus strivings*).

In view of the fact that the nuclear constellation of the psychotic mechanisms which are discussed here is represented by the

feminine castration complex combined with a partially regressive father identification, *i. e.*, by a set of purely narcissistic elements—the main characteristic of the typical personality of these women appears to be a pronounced narcissism.

Inasmuch as we were dealing with the psychological features of these reactions no systemic study of the hereditary and biological constitutional factors was made; an effort was made, however, not to overlook these factors whenever and wherever they were prominent. The impression was gained that alcoholism in the family is a frequent finding and that the greatest majority of the women, who presented the picture of schizophrenia related to childbirth, showed a number of signs which in the old days might have been termed "stigmata"; thus two of the twenty-five cases weighed at birth but three and five pounds respectively; a number of them were rather small women with rather small breasts and pelves, giving the impression of physical immaturity.

Another impression which appears as suggestive, as it is characteristic, is that in taking a careful history, one finds it easy to trace the beginning of the psychotic process to the puerperium, and in a few cases to the last month of pregnancy; the acute phase usually sets in within the first six or ten months after childbirth. This would warrant the conclusion that the cardinal point in the development of the psychosis is represented by the puerperium; this view is by no means new and is borne out by the statistical studies of many observers; only 3 to 23 per cent of all mental disorders related to gestation and childbirth occur during pregnancy; 6 to 45 per cent occur during the period of lactation, while the figures for the puerperium are 40 to 86 per cent. If the importance of the puerperium is here again emphasized, it is because it appears that at least the post-partum schizophrenias are even more intimately related to the act of childbirth than to pregnancy or lactation; psychologically lactation does not appear to be traumatic in any sense; the traumatic factor lies in childbirth. The old term "psychoses of lactation" or "lactational psychoses" is even more obsolete and less justifiable than the term "puerperal psychoses."

It must also be definitely borne in mind that while we are considering childbirth and to a certain degree pregnancy as the traumatic moments which precipitate a post-partum schizophrenic re-

action, these moments are to be viewed not as ultimate causes of schizophrenia amongst married women, but as dominant and stormy precipitating factors.

The most typical manifestations and characteristics of post-partum schizophrenias having been considered in the two communications which were referred to above, the considerations which follow deal with some of the further elaborations of the same reactions.

III.

A more typical case will be cited first.

CASE 1770.—The wife of a clergyman, 32 years old when admitted to Bloomingdale Hospital; her physical condition was good. All laboratory findings were negative.

She was the oldest in a family of English stock; the paternal side of the family showed a number of neurotic traits; they were high strung and maladapted individuals. The mother was a very nervous woman; all of the siblings were tense and unstable; one brother (patient's favorite) suffered from a psychosis of which no details were available.

The patient's birth and early development were normal as far as it is known. Her school record was good. Home life was very difficult; the father was a disagreeable person. While the patient was her mother's pet, she definitely preferred the father; for a time she took care of her brother who was a "peculiar child" and who later developed a psychosis. She herself was rather a reserved girl; her classmates considered her "funny" and "old"; she was a poor mixer. She is said to have been interested in a boy, while in high school, but it was an insignificant affair. While in college she became engaged to a young minister, who later became her husband; they quarreled frequently, made up frequently, but the patient was for some reason averse to marrying. On the eve of the wedding she lay awake the whole night and cried: she did not wish to marry, but her mother insisted that her daughter marry a minister and the patient had to obey.

She was married at the age of 19. She was frigid. One year later, after an uneventful pregnancy, the patient gave birth to a child. Labor was prolonged, but otherwise uneventful. Three or four months later the patient began to show signs of depression and irritability. During the brief moments of depression she would become antagonistic towards her husband; on several occasions she said that she preferred her husband as a father rather than as a husband. The child died of poliomyelitis at the age of two; the patient took its death remarkably well. For five years life went on with apparent smoothness. A second child was born, when the patient was 27 years old. Her sister took care of her during the puerperium; the patient was irritable and quarreled with her a great deal; she also developed an unaccountable aversion for her husband. This aversion became gradually more and more

accentuated and in the course of several months it became ominously severe, particularly during her menstrual periods. It was clear that the woman was mentally sick. However, while difficult to live with and difficult to manage, she was kept at home for five years. At times her antagonism towards her husband would become particularly acute and she would speak of leaving him "for his own good"; she proposed that they live in the same house but separately. (During one such acute period she was brought to the hospital.) She said: "I never belonged to him"; her "body was a battleground between good and evil." Detectives were watching her. She expressed the conviction that her husband referred to her in his sermons. She had visions; many faces telling her that she was going to die. She saw a door with a sign "Death"; this meant to her that she was expected to commit suicide. She once asked the janitor of the church to help her to get into the furnace and thus be burned.

While in the hospital she developed a strong attachment to another woman patient and on several occasions said she was not worthy of the love of that woman. "My ideal since childhood was to keep myself pure in heart as well as in action." After one year's stay at Bloomingdale Hospital she was transferred to a state hospital; her condition cited as unimproved.

The rather indifferent attitude towards the child will be noted for further reference. The frigidity, the long lapse of time between the two pregnancies, the antagonism towards the husband manifest since the first child was born are all characteristic features. This woman, like all post-partum schizophrenias, was not interested in marriage and true to type preferred her husband as a father; that this statement was not merely a *façon de parler* but an expression of an unconscious craving for remaining on the level of her early relationship to her father is seen in the fact that the patient did not want to leave her husband; she wanted to continue to live with him under the same roof but separately "for his own good." The "for his own good" is suggestive of a threat, of a revengeful attitude towards the male, which in some cases* comes to frank and unequivocal expression.

The idea of death so prominent in this patient's trend is of some interest. Post-partum schizophrenics rarely, if ever, make any suicidal attempts. Only one case in our series attempted suicide (see below) but later even she appeared to have become easily reconciled to a psychotic existence. The idea of death would appear here to have the nature of a symbol rather than a

* "Post-Partum Schizophrenias," referred to above, and also case H. R., quoted below.

mysterious reality to be striven toward. The most recent restatement of the subject by E. Jones leaves little doubt that death represents here a castration idea or a final evolution of it in the form of an unconscious concept of desexualization. The patient under discussion did not apparently want to die actually; what she wanted was a symbolic death inflicted upon her by someone else (father?); that is probably why she wanted to be burned in the furnace of the church. The janitor was to be the chief executioner—not she herself.

This case alone does not provide us with sufficient data which would enable us to express a definite opinion as to the genesis of her homosexuality. However, on the basis of the previous studies it would appear that as a result of what is termed a regressive father identification, the woman who is burdened with a castration complex represents a potential homosexual individual. Child-birth being a castration—the psychotic reaction to it is a recrudescence of the penis envy, a re-assertion of unconscious maleness which was perceived in our case as her “body being the battleground between good and evil.” As the homosexual tension increases it reaches its final expression in a frank attachment to another woman—a manifestation of great frequency in post-partum schizophrenias. Characteristically enough our patient protected herself by means of a rationalization which betrayed the deepest meaning of her psychological incapacity for being a mother: on one hand, she “was not worthy of that woman,” while on the other, “My ideal from childhood was to keep myself pure in heart as well as in action.” “To be pure,” in this case, apparently means to be sexless, to be untouched, to have no intercourse—not to be castrated, since intercourse, particularly the act of defloration represents to the woman’s unconscious the act of her castration (Freud, Deutsch).

To avoid possible misapprehension it should be reiterated that the psychological mechanisms, of which the schizophrenias under consideration are suggestive, are not specific, *i. e.*, they do not represent any particular mechanisms to be found only in post-partum reactions; they may be found in other schizophrenic women too; there seems to be no doubt however that no matter how distorted and variegated the clinical pictures may be, once a

schizophrenia is found to be related to childbirth the castration mechanisms (the revenge type) coupled with a definite father relationship are apt to stand out more prominently than any other constellation of psychological dynamics. Amongst the slowly developing psychoses, in which the tendency to deterioration is correspondingly slow one is liable to find these mechanisms more clearly expressed and their psychotic evolution more transparently defined; thus:

H. R., a woman of 53,* has been sick for 30 years. Many members of both sides of the family were alcoholic; her father was a very seclusive person and alcoholic; he died when the patient was eleven and one-half years old. Her mother died when she was 13. She was a healthy child. She recalled that she used to be fearful at night, she would cover her head and be haunted by thoughts about ogres. She recalled witnessing parental intercourse at the age of nine. At the age of eleven she used to play with another girl a game they called "Father and Mother"; the patient played the rôle of father. It was at that time that she used to dream of a man putting his penis in her vagina. At twelve she was forcibly initiated into fellatio by an old man in the neighborhood. Soon afterwards she had a homosexual experience with a girl of her own age. She used to be very angry with her mother and one day picked up a knife and threatened to strike her. After the death of her mother she spent three years in a catholic home. Then she spent some time in the house of her uncle. She matured without complications and grew up to be a moderately healthy, rather reserved, seclusive girl; over-modest and sensitive about sexual matters. She suffered from nocturnal enuresis till her early twenties. At 21 she had an inconsequential love affair with a man of 27; she was never familiar with him, although she even became engaged to him; but she was displeased with him when he failed to give her a Christmas gift and she broke off the engagement, soon to become engaged to another man who reminded her of an uncle, greatly admired in her youth. She knows that she had once sexual relations with her husband a couple of months before they got married. She never could recall what her sexual reaction was at that time. As a matter of fact, she did not intend to marry—yet, but she was compelled to do so because she discovered that she was pregnant. As has been said, she had complete amnesia with regard to her sexual response in the first coitus; in marital life she was cold and submitted to coitus only upon the insistence of her husband; she would not allow her husband to see her dress herself.

She went through her pregnancy without any difficulty, but soon after childbirth she insisted on moving to another town as she was apprehensive

* I am indebted to Dr. C. Floyd Haviland, Supt., and to Dr. E. Cicarelli of the Manhattan State Hospital for putting the record of this case at my disposal.

lest people discover that she had conceived before marriage. She became rather fearful. About six months after childbirth she made an impulsive attack upon her husband's genitals. She developed the fear that a man downstairs was coming up through the floor. They moved to an hotel; she complained of hearing voices in the next room. She accused an unknown man of having murdered her father. She imagined that people were trying to poison her; she refused to eat. She stated: "I was examined several years ago and it was established that I had no womb. I have never menstruated, but I hope I will by God's help. I want to prove that I have got a womb." She soon appeared to calm down and adjusted comparatively well for a period of two years; she had mild paranoid ideas but seemed relatively comfortable; she had been seeing a psychoanalyst at that time. She became pregnant again. A short time before childbirth she accused a neighbor of trying to seduce her husband. The second child was born five years after the first. Her paranoid ideas became accentuated; she refused to have a home; the family, or the patient herself, would move frequently from place to place. She complained of fatigue; she could not care for her home or children because she "was exhausted"; five years later (at 32) she spent some time at Manhattan State Hospital, where she has continued to reside ever since with a few interruptions. While at the hospital she used to feel moderately comfortable, but on the outside she would soon find herself sinking rapidly, complaining of fatigue and of compulsive thoughts: "Some times the thought of a snake would come to my mind; it would seem to be ahead of me. I would think I see it, but it wasn't there; this would bring the thought of a male sexual organ to my mind." She was self-accusatory over her early sexual experiences and continues up to the present to worry about her sexual premarital transgression. She had auditory hallucinations and a feeling that her hands were dirty. She had good insight, but was unable to rid herself of compulsive thoughts of a sexual nature. She complained of fatigue constantly. She had a compulsive idea that she could not wash herself or her stockings; she found difficulty in dressing and undressing herself; her clothes must be placed just so; they must be taken off and put on in accordance with certain ritualistic procedures; she would see a phallus in the faucet or would suddenly have the idea of a penis on a plate; the food she was about to put in her mouth seemed to turn into a snake's head. She would turn all corners with careful precision, making an angle of 90 degrees. This meant to her "to be square, honest, upright." Since her son grew up she began to think of him a great deal. "I saw my son one day while he was dressing," since then she has been thinking of his genitals and of her early fellatio experience. Her son in the meantime became engaged. At first she liked his fiancée a great deal. When the young man and the girl would have a quarrel, the patient seemed to be more affected than the young couple. When she was sewing she would think of the girl; she began to worry as to what her duty towards the girl should be. She frequently dreams of her now. She has definite feelings of tension and anxiety when she thinks of her. She has obsessive thoughts that the girl is lost and that she would never see her again. When telling about

it she cries freely. She has obsessional thoughts like, "slay her" or "she is ruining my health." She also dreams that she had killed off her son in some fashion or other. She also had a dream that she was with her father and was about to kiss him when he suddenly changed into a serpent and she recoiled in horror. It is not without interest that the patient's response to the word "mother" is reading it backward "rehtom," which she associates with "rectum."

This case tempts one to speculate on the nature of the reaction which associates so intimately the clinical picture of schizophrenia with so many and so well pronounced compulsive and obsessional features. It is noteworthy that some of the writer's post-partum cases not belonging to this series developed severe compulsive and obsessional neuroses instead of psychoses. We may state in passing that compulsive reactions and phobias, according to Freud, present a symptom-compromise between a striving on the part of the Id or Ego and the prohibition imposed by the Super-Ego. This woman of 53 was most unfortunate in that her early childhood was rich in traumatic sexual experiences while her early adolescence was spent in the strict atmosphere of a Catholic convent, from which she came out over-modest, over-reserved, prudish, *i. e.*, with a powerful conscience, which was destined to reinforce her compensatory reaction to her earlier penis envy and Oedipus phantasies. This explains perhaps the presence of self-accusatory ideas, which are usually not so pronounced or are entirely absent in post-partum schizophrenias.

Her seeing a snake just ahead of her which she "sees yet it isn't there" and the vision of "a penis on a plate" definitely betray a deeply seated and active penis envy, the real nature of which she betrayed in her attempt to degenitalize her husband a few months after childbirth. The affliction with nocturnal enuresis is significant in this connection, since Abraham pointed out that this symptom is not an infrequent manifestation of the feminine castration complex. The Oedipus situation in this case is illustrated in a singularly interesting way. This woman observed parental coitus at the age of nine; two years later we saw her pick up a knife to strike her mother and almost at the same time, or soon afterwards we see her play the game "Father and Mother," where she takes over definitely the part of the father. She either wants her father as a sexual partner, or failing the fulfillment of this wish, she wants to become father, or a man.

This tendency became quite prominent in the early stages of her psychosis when she denied having a womb and ever having menstruated. Her first sexual experience, while knowing that it happened before she had been married, she wiped out of her memory; this amnesia for the act of defloration would point to the extreme traumatic significance it had for her (defloration-castration). She becomes sexually frigid. She may have had anal phantasies of having a penis, or a child, (she associates "Mother" with "rectum"), a so-called "anal penis" or "anal child"—hence she remained on this level regressively and never developed the adult vaginal erotism. While already mentally ill she observed her son growing up to become a man and she transferred onto his genitals the envy she had for her father's genitals. Then when the son becomes engaged, she re-enacts the whole *Œdipus* drama with singular vividness. This repetition of father-daughter relationship in the mother-son relationship, as is known, is not unusual, although it is very striking; some primitive people believe that the maternal grandfather is reborn in the person of the woman's first son. In our case this primitive belief is re-enacted quite clearly. The *Œdipus* attitude, which is one of the normal stages of development in the life history of every human being, normal and abnormal, has not been entirely outlived by this woman; it became one of the central points of her psychotic reaction; her re-enactment of the *Œdipus* situation in relation to her son finds further expression in her obsessional thought about her son's fiancée; she would think compulsively: "Slay her," which appears to be a reverberation of the time when she as a little girl wanted to strike her mother with a knife. The patient's obsessive thought of killing her own son is as striking as it is significant; we shall have occasion to return to this symptom when the unconscious meaning of the child to the post-partum schizophrenic will be discussed.

In this connection another case will present some interesting characteristics.

CASE 2050.—A woman of 41, a descendant of old Puritan stock. On admission to Bloomingdale Hospital she showed nothing physically abnormal except for being underweight. She was tense, talked a great deal in a disconnected fashion, betraying a number of delusional ideas.

Two of her brothers and her husband were alcoholics. She had a normal childhood and a normal school history. Her father died when she was seven

years old. She matured at 15, and for about two years her menstrual periods were irregular and accompanied by cramps. At the age of 17 she obtained a job as a stenographer; she was a good worker and showed good executive ability; she kept the job for 16 years; she was practical and self-assertive; people, particularly women, became easily attached to her. She, however, was not affectionate or demonstrative; she was reserved and shut-in; her mood was found to be always even; she was not interested in sex matters and was closely attached to her mother. When she was 20 she became engaged to a young man for about a year; the engagement was broken off on account of trivial gossip. Ten years later she became re-engaged to the same man; this time the engagement was terminated by the death of the man. The patient showed little if any emotional reaction to this and went on with her usual work, to become engaged and married three years later at the age of 33. She was found to be totally frigid. She conceived soon, and five months after marriage she left her job on account of her pregnancy; she did so very reluctantly. Her condition during pregnancy was excellent she was jolly and went through childbirth without difficulty, but found that she had no milk and the baby had to be bottle fed. She did not conceive for another five years, at the end of which period she had a miscarriage. A year later (at the age of 40) she was delivered of another child. She nursed the baby regularly, but she worried whether it received enough nourishment. She felt that her milk was drying up, although this was not the case. She would jump up in the middle of the night in apparent fear to see how the baby was; the child was gaining, she insisted it was losing; she feared it would die. She decided not to have any more babies; the possibility of another pregnancy made her cry. Her talk became irrelevant. She became antagonistic toward her husband and is said to have cast threatening glances at the baby. She said she was looking around for a revolver; she asked for poison. She was taken to Bloomingdale Hospital where she soon slumped into a half-stuporous, mute state. She was tube-fed for many weeks. She was agitated and quite productive at times. She talked spontaneously: "I did not put baby on the stove. She put the baby on the spider, on the stove and she killed my husband on the sidewalk and she killed him on the boat, because they lowered it way down. . . . The girl says I burned my baby on the platter. See, water, everything coming down." She wet and soiled herself. She spoke of poison in the food and of the world having changed.

"I was dead and killed a million times over. I haven't even any eyes. I have seen a rattlesnake dance. I never was married. I have been in most terrible places with wild beasts. . . . A little fire committed when joining." She spoke of having sinned in her youth, "something every man and woman does." "I never was married because I was killed. I was always tortured by snakes. It was the body of another woman; I have been in the body of another woman." She was nihilistic. "Even a rattlesnake has gone down my throat, even my stomach, even me. . . . I have even gone into the animal race."

For the views on the outstanding characteristics of this patient's personality, such as lack of interest in men, manly executive ability, playing the rôle of father in relation to mother (supporter of mother), indifference towards marriage and sex life—the reader is referred to one of the writer's previous communications.*

Only the significance of the patient's main trends will be considered here. The patient's language bears all the earmarks of the archaic type of schizophrenic productions, which since the investigation made by Storch have become more intelligible to the psychiatrist. The patient evidently speaks of herself when she says: "She did not put the baby on the stove; she put the baby on the spider on the stove." If we read only the first sentence of the production we might be considerably puzzled as to the meaning of the negative assertion, but the second sentence appears to elucidate the first; "she put the baby on the spider † on the stove"; she also later said: "I burned my baby on the platter"; this appears to express or to be related to the same unconscious idea which was represented in the case of H. R. by an obsessive vision of a phallus on a platter. In the unconscious the child and the imaginary feminine penis are one and the same thing; bearing this fact in mind we shall be justified in seeing here an attempt on the part of the patient to replace her lost penis and at the same time to express the idea of having been castrated.

The revengeful attitude towards the husband's penis is characteristically expressed here in a heavily veiled, truly schizophrenic fashion: "She killed him on the boat, because they lowered it way down"—an obvious hint at coitus giving rise to a desire to get rid of the husband (his genitalia).

The meaning of death as castration has been referred to above; the patient states that she was dead; she disposes of her husband; she was never married and she also states in this connection: "I have not even my eyes." The eye being a frequent symbol of the vagina, one recalls H. R.'s statement that she had no womb and

* "Post-Partum Schizophrenias."

† The word spider may be an accidental thing here; yet it may be an associative expression of the same vaginal symbol; the spider and the head of Medusa (Ferenczi) not infrequently are found to represent the vagina endowed with many penes (over-compensatory reaction to the idea of castration).

that she never menstruated. Having disposed of this anatomical mark of femininity, the patient feels free to enter the phantasy of a dancing snake and to give expression to a characteristic and quite common primitive infantile theory. "Even a rattlesnake has gone down my throat, even into my stomach, and even me." There is an echo in this production of that early phantasy which sees a close relationship between food (mother's breast?), penis and the gastro-intestinal tract. (We shall recall again H. R. who complained that food would frequently turn into a snake's head just when she was on the point of eating it.) The equation breast-penis-feces-child, as is known, is an extremely common formula concocted by the unconscious of even "normal," *i. e.*, mentally healthy women; it comes up invariably in analyses.

As has been hinted above, this case and the case of H. R. throw also some definite light upon the unconscious relationship and attitude of post-partum schizophrenics towards the child; it represents either the incarnation of a lost penis or the father (or his penis); in so far as it stands out as a lost organ, lost by means of a stormy castration (parturition) it is considered by the unconscious not as the *cause* of the woman's difficulty, but as the *result* of it; the feeling towards the child one would naturally surmise, is not that of hatred and revengefulness, but of regret, of narcissistic pain created by the consciousness of a sustained narcissistic injury; the displaced and compensatory manifestation of this emotional attitude finds its expression in indifference towards the child; moreover, if we bear in mind that the early phantasies of "anal penis" and "anal child" become activated—the attitude towards the child assumes an anal coloring—it becomes an aversion; all cases in our series (except one, which is cited below) display this attitude, which occasionally assumes still another form: the indifference and aversion cooperate as it were in an attempt to get the child entirely out of the way and we then deal with a delusional idea that the child is dead. In so far, however, as the child represents the father, we may occasionally find an attenuated revengeful thought in relation to it. The old love for and fear of father is responsible for the attenuation of the sadistic impulses against him. We saw this illustrated in H. R.'s compulsive thought, "Kill him," directed against her son; it was observed in a case of a woman, who used to put sharp instruments in the

child's way and in the angry look of the case just quoted, who finally disposed of the baby by means of a phantasy condensing its disappearance with a symbolic, compulsive, repetitive castration phantasy (the child, "was burned on the spider on the stove"); in other words, given a post-partum schizophrenia, one might expect a certain degree of animosity towards the child but hardly an attempt to kill it. We shall return to this question later.

IV.

The two cases which follow will be reported rather briefly and with little comment since most of the characteristics they display have been seen in the cases already cited and discussed at length above; they are quoted because they introduce an additional feature occasionally met with in post-partum schizophrénias.

CASE 1357.—A woman of 28. On admission to the hospital, she appeared physically reduced, tremulous, mute; she voided in bed and had to be tubefed. There was no evidence of acute or chronic physical illness.

She was the fourth in the family. Birth, early development and school history, so far as known, were normal. She began to menstruate at 12 or 13. She is said to have enjoyed the attention of boys. She never had any love affairs. She was married at 21 to a man whom she had known for over five years. The circumstances which led to marriage are unknown. She had no sexual demands and submitted to sexual intercourse reluctantly and without response. She never was a demonstrative person, had difficulty in making friends and was thrifty and stubborn. She never confided her troubles to any one.

She did not conceive until three years after marriage; labor set in the seventh month and culminated in a still birth; the patient did not seem to be affected by the fact; she showed no physical or mental symptoms. She conceived again three years later. She looked well and felt well during her pregnancy except for the last month or so, when, on one or two occasions, she appeared to tremble with her whole body. She insisted that a certain doctor deliver her, because he had the reputation for prescribing a number of sedatives and hypnotics.

A full term healthy child was born. The patient stood labor well; she appeared normal in all respects except that she never smiled and never manifested any love for the baby. Whenever it was brought to her, she would promptly send it away.

She returned from the maternity hospital two weeks after childbirth. About a week later she showed signs of irritability and tenseness. She would not talk, cried a little and then suddenly would sing for a while; her singing would be followed by unusually prolonged sleep. It was approximately at that time that a kidney infection was discovered; she ran a high fever. She

was treated; the physical condition appeared to clear up, but the mental state of the patient was not changed. She did not seem to want to have anything to do with the baby. Her husband seemed to aggravate her; if she came in contact with him, she would push him away and then she followed him; she would not talk. She was taken to a psychiatric hospital, from which she was soon removed to a general hospital in view of the fact that she had again developed a high temperature. She recovered from this exacerbation of what seemed a pyelitis, but her mental condition grew worse. At Bloomingdale Hospital she was mute or taciturn most of the time; she had to be tube-fed for many months. Even during her quieter periods, she refused to see the baby. She had assaultive episodes; her attacks were directed against the nurses. She would retain her saliva and be very resistive. About two years after childbirth, she showed signs of considerable deterioration. Six years after childbirth, her deterioration was greatly advanced. Her trends were not studied. She seldom if ever betrayed any.

Having never confided her trends to any one, this woman represented a poor case for study. Objectively she displayed the characteristic attitude towards her husband and child—the more intimate psychological mechanisms remain concealed here behind her mutism. The case was cited, however, because it shows how rapidly a post-partum schizophrenia progresses at times towards deterioration and also mainly because this woman began to show mild signs in the latter part of her pregnancy. During the last month or so she showed on several occasions the tremulousness which she later on displayed in the course of her psychosis.

The next case too showed some signs before pregnancy and throws some suggestive light on the mechanisms which might be operating here.

CASE 2061.—This woman of 35 had three pregnancies in 12 years. She was frigid; she never had a natural orgasm until it was obtained by means of a stream of water flowing upon the clitoris from the nozzle of a rubber tube, a habit she acquired before marriage. She is said to have appeared "on the verge of a breakdown" after the first childbirth; she gave birth to a second child four years later (like the first, it was unwanted). She always slept in a room separate from her husband. She disliked contact with him; she never dressed in his presence. After the birth of the second child she avoided contact with her husband more carefully. However, she conceived again seven years later; shortly before childbirth she fainted twice. Soon after an uneventful childbirth she began to complain of fatigue; she was not well; six months after childbirth she began to complain that it was difficult for her to remember things. She became agitated and tense; people conspired against her husband, she said; she thought she had to die; that her child was dead. She was afraid that people might think that the child was not her husband's,

but the child of the minister of the church to which she belonged. She heard the voice of her father calling incessantly; she would not divulge what he said (she has always been greatly attached to her father). She said that she had eaten some germs; she refused food and had to be tube-fed. She finally "confessed" that she had eaten snakes.

One will note that the Œdipus relationship to the father, which under one guise or another is found in most psychotics, stands out in this case as a central pivotal point. The patient projected her re-awakened and probably fixated belief by having people suspect her of having borne a child by the pastor of the church (a father surrogate—the patient was an ardent church worker).

According to analytic experience and theory the evolution from the penis envy stage is usually characterized by the girl finally giving up hope of possessing the father's penis and striking a compromise (penis-child); if this unconscious infantile wish is not entirely given up, it becomes difficult if not impossible for the woman to transfer her affection upon the man who is to become the real father of her children. This patient apparently is one who has clung with especial obstinacy to the infantile phantasy of an actual love relationship with her father, a relationship which her Super-Ego would not accept, of course. This may explain, to a certain extent at least, the onset of the psychosis somewhat earlier than usual. For if our analysis of the psychodynamics of post-partum schizophrenias is correct, the period of pregnancy should be marked by the absence of any psychological difficulty, or to be more correct, by the absence of manifestations of any psychic conflict; the woman laboring under the difficulty of a castration complex in becoming pregnant begets by way of symbolic substitution the long wished for penis, the child or the foetus playing the rôle of this organ; hence during pregnancy she goes through a period of considerable narcissistic gratification and therefore should be happy rather than despondent. This is exactly what was found in all the cases studied, except in the two just cited. It is only when the actual Œdipus situation is the most prominent feature that we might expect the development of an unconscious sense of guilt, the pressure of which becomes increasingly great as the time of parturition approaches; it is natural then to expect some mental symptoms just before childbirth. The process seems to be reversed as compared with the normal; the course of pregnancy of normal

women is usually marked by the appearance of neurotic symptoms early in pregnancy and by their disappearance in the later stages, while in this case we find invariable comfort in the early stages of pregnancy and mental symptoms in the later stages.

If our supposition corresponds to the actual unconscious representation we ought to expect a certain number of depressive features (expression of the sense of guilt) which are usually absent in the schizophrenic psychoses which follow childbirth. The hypothesis appears to be corroborated by the two cases in our series in which the conscious or unconscious severe attachment to the father was most prominent. One of the women * expressed self-accusatory ideas and displayed in her psychosis moderate mood fluctuations (her normal personality make-up was consistently schizoid); the other woman (Case 2061) went through definite periods of psycho-motor retardation and sadness.

Let us recapitulate our assumption: Pregnancy, unless it is combined with an unusually severe father attachment, is psychologically a very satisfactory period in the life of the woman who is to become a post-partum schizophrenic; therefore one should hardly expect to find any "pregnancy schizophrenias." Only two cases in our series showed very mild symptoms in the last month of pregnancy, their psychoses developed definitely, as they usually do, only some time after childbirth. This assumption is further corroborated by the fact that there was only one case in the whole series which developed a psychosis before reaching childbirth and this case, which will be reported presently, showed some specific features.

CASE 1859.—The patient, the wife of a lawyer, was 25 years old when admitted to Bloomingdale Hospital. She was quiet and cooperative, rather vague, digressive and discursive. She has many plans for helping others; she stated that she had changed her life; she had been vain previously; she had indulged in masturbation for many years, and holding up her forefinger she said that because she had done wrong with that finger, it had begun to write automatically and it criticized her. She demonstrated her "automatic" writing by writing: "Your husband is dead. It is too late. He will be here soon but not alive." She stated that she was happy and had been so since she found this new way of living; that she was going to be very humble; that

* "Malignant Psychoses Related to Childbirth," referred to above. The first case cited.

she wished to remain away from her husband until she had learned to live right and then if they wanted one another, she would go back. Her sensorium was clear in all spheres.

Except for an operative scar on her abdomen, and a slight loss of weight, physical examination showed nothing of importance. All laboratory findings were negative.

Patient's father died of tuberculosis and her older brother had tuberculosis. She was a little girl (age unknown) when her father died. During the first five years of her life, she was rather tiny and weak, having weighed only five and one-half pounds at birth. She always reacted with delirium to an elevation of temperature. She suffered from nocturnal enuresis till the age of 12 and did not menstruate till the age of 16. The menstrual periods were irregular, always accompanied by pain. She underwent two operations for internal suspension, at 21 and at 24; since the last operation she has felt well.

She has always been interested in novels and drama, especially playwriting; she took several courses on these subjects. She has been interested in dancing also. She had no love affairs. She was married almost suddenly (after an acquaintanceship of two or three months) to a man 30 years her senior. She appeared to be happy and enjoyed being admired by her husband's friends who paid a great deal of attention to her.

She conceived a few months after marriage and began to worry about it; she wrote at once to a doctor who she heard would induce painless labor in the seventh month of pregnancy. She said later that she was afraid to lose her good looks and figure. Her sexual demands were said to have been great, but the patient, when already in the hospital, wrote to her husband saying, "I was afraid I might lose my exquisite figure. I have always imagined I wanted it (a child). When you kissed me you thought I was happy, but I rarely had the slightest thrill. I always loved them (men) more after they had gone." She explained frankly that she tried to induce a miscarriage by jumping many times down the stairs and by trying to injure her abdomen. She miscarried at the third month of pregnancy.

She became gradually very quiet, abstracted, evidently dreamy. Three or four months after the miscarriage she began to be interested in astrology and palmistry, and would remain motionless for hours during the day. She soon began to do her "automatic" writing which was mentioned above. She said that she could not control it, that it was done upon the direction of her grandmother who brought her up, and to whom she was attached.

A few months later she was "receiving" messages (she did not explain how), to the effect that she had to change her mode of life. Under the influence of such a "message" she suddenly had her head shaven. She said she wanted to live away from her husband in order to prove worthy of him. In the hospital, to which she was admitted 10 months after the miscarriage, she asked to be given humble tasks like peeling onions in the kitchen or scrubbing the floor. She said she was happy.

She would attitudinize, assume an abstracted blissful air, mumble to herself; address herself in the second person. She said: "Shave your husband's

head, dear, make him perfect but he must suffer first for three years." Or, "Astronomers are gnashing their teeth at you." She called herself by her maiden name. She would frequently be heard speaking to herself about purity and saying: "I want to be a real woman. Grandmother is good and conscientious and everything else."

She would be quite upset each time her mother visited her, and once, following such a visit, she tried to commit suicide. Lately in answer to a question whether she wanted to die, she said, "No, not really to die, but I wanted to have suffered."

She became somewhat evasive about her psychic powers and would respond constantly to auditory hallucinations. She became haughty, spoke of the "fire of self-abduction," and for a period refused food and had to be tube-fed.

She was finally transferred to a state hospital, where she continued without change, going at times through periods of excitement.

The most outstanding feature in this case is the infantile, narcissistic character of her personality. She was greatly interested in exhibitionistic arts and was greatly determined to preserve the youthfulness of her figure. As to men, she "always loved them more, when they were gone," for she was apparently incapable of unchaining her libido from herself; her married life appeared satisfactory only in so far as she enjoyed being admired even at the price of feigning a love thrill. The suddenness of her marriage and this to a man thirty years her senior is rather convincingly significant: the only level to which her immature infantile libido was able to rise temporarily was the level of the *Œdipus* attitude. She was unable to stay on that level very long; as soon as the *Œdipus* relationship had been consummated, *i. e.*, as soon as she had become pregnant, her narcissism made her recoil, and there arose in her at the same time quite naturally a strong sense of guilt; this would explain her masochistic trend and suicidal impulse.

Unlike the post-partum schizophrenias, her personality development never reached the stage at which there has been a conflict between the social demands for complete femininity on the one hand, and on the other the bio-psychological demand of the *Ego* to be a man; she was apparently arrested in her development at an early narcissistic stage.

For the understanding of the more intimate dynamic factors a more careful study of a larger number of similar cases is required; this case, strictly speaking, does not belong to the series studied;

it was cited here merely to illustrate the fact that those women who rebel against the fact of pregnancy itself (the patient began to worry as soon as she conceived) and then developed schizophrenia belong to an entirely different group from the post-partum schizophrenias. The constellation of psychodynamic factors is quite different in these cases which are comparatively infrequent.

It should have been noted that one of the most outstanding characteristics of the post-partum schizophrenias which have been discussed is the absence of any frank suicidal or infanticidal attempts, which are so frequently met with in other post-partum psychoses. The child it appears has for these women more the value of a lost male organ than anything else.

However, the last case in the series, which is cited below, seems to contradict the first impression and to upset the theoretical premises which made the absence of suicide and infanticide appear natural and almost inevitable.

CASE 1643.—A Jewish woman of Roumanian descent, the wife of a salesman. She was 31 years old when admitted to Bloomingdale Hospital. Her sensorium was clear in all spheres; she laughed easily and responded to auditory hallucinations; she had no insight. Her physical examination was negative, except for coarse hair on her face and legs. She had worked as a stenographer up to the time of her marriage, which took place at the age of 21. All that is known is that she was a shut-in person and that her sex demands were slight. Since marriage she is said to have become still less sociable, more shut-in and showed a pronounced tendency to day-dreaming.

She had a miscarriage within the first year after marriage; she stood this well. The next year she gave birth to a child and following this she became irritable and quarrelled with her husband over trifling matters. Two years later she gave birth to a full term baby. Immediately after childbirth she attempted to kill herself and the child by gas (details unknown); she has not appeared well since. About 10 months after childbirth she developed an excitement following a quarrel with her husband. She became assaultive and was taken to a hospital; a month later she improved and returned home; she appeared comparatively well and nursed her husband through typhoid fever; at the same time she began to show a very pronounced antagonism towards the child; she scolded it; she punched it; she became worse very gradually. Three years later (four years after childbirth) she was found to have a well systematized religious trend. She wrote letters to the Pope, to the Prince of Wales, and to Henry Ford, asking for contributions to her religious work. She joined a synagogue; she was in love with the Prince of Wales, but she "refused to accept" an engagement ring and jewels which

he had offered her. The Spanish King had whispered to her once: "I love you." The voice of a prophet commanded her "to be good, honest and clean." Two years later (six years after childbirth), she was brought to Bloomingdale Hospital. Soon afterwards she entered a trance-like state in which she remained for 10 days. She was assaultive at times. She hated people with black eyes (her husband had black eyes and black hair). She hated her child; she hated her mother. She was a queen trying to improve the people of the world. She would see herself frequently in an underground chamber, which was filled with knives and instruments of torture; she tried to save the unfortunate who had been thrown there; this coincided with her assaultive episodes.

It is deplorable that so little could be learned about this patient's early life, her family attachments, her sexual reactions, and her condition during her pregnancies; without these data at hand a clear understanding of the case is quite impossible. That she began to fail in her mental adjustment as soon as she had married is clear, however. This stands out in great contrast to the remainder of the cases of the series, where we dealt with women, who despite their psychosexual handicaps, were comparatively well adjusted and reasonably well satisfied with life; these women appeared to be able to adjust themselves to an apparent womanhood and assume all the social attributes of the latter, including marriage; the only attribute they seemed to refuse to accept was complete and unconditional motherhood.

The patient whose history has just been given showed no such capacity for adjustment. What particular mechanisms were at work in her suicidal and infanticidal attempt one may only surmise, but for any definite conclusion clear and adequate data are lacking; this however may be said; the patient throughout her psychosis showed a striking absence of castration ideas; the center of gravity of her main trend appears to be an expansive, regressive phantasy of an incestuous relationship with her father; as has been seen in the other cases wherever this regressive phantasy dominates the picture without the castration complex (revenge type) being coupled with it, the sense of guilt becomes mobilized and depressive features enter into the clinical picture; this may give us a clue to one of the reasons why she attempted suicide, suicide being the final expression of the dominance of a strong sense of guilt. This being the case, the child here assumes the same value which it usually assumes in post-partum depres-

sions, *i. e.*, the child to the patient is herself—her Ego (Deutsch) which feels guilty and seeks severe punishment—hence the tendency to punish the child constantly. This case is noteworthy as evidence of the fact that suicide and infanticide despite their theoretical improbability do very rarely occur in schizophrenic psychoses associated with childbirth. I should be inclined, however, to consider this case a very slowly developing schizophrenia beginning soon after marriage rather than after childbirth.

V.

For purposes of comparison, I shall now cite two typical schizophrenic cases (belonging approximately to the same age group as our series) in which childbirth apparently played no rôle.

CASE 2085.—An unmarried woman of 37. She was mildly agitated and tense when admitted to Bloomingdale Hospital. She appeared depressed and fearful; she complained of a number of queer bodily sensations. Life for her was "one long regret"; she had ideas of somatic unreality; her hands were not real hands. "I cannot get up and put on my clothes because there is nothing to put them on." There were no auditory hallucinations at that time. She was physically well. She was the younger of two. Her sister was a very brilliant woman, and as a result of the sister's reputation the patient was made a great deal of at college.

Her birth and early development were uneventful. She matured normally, and her school record was good. Her father died when she was 20. Her mother committed suicide soon afterwards. The patient was greatly attached to her family, but met the death of both parents with her usual reserve. At college she was very popular. She was president of her class in her senior year and upon graduation, at the age of 23, took up teaching; she disliked the work of teacher, but did it well. She was poor, but always "made a virtue of her poverty." Soon after the war an opportunity presented itself to do orphan relief work in one of the Balkan states; she enjoyed her work there, but frequently said that she would like to help humanity but she hated it because it was so ugly. She had some women friends, whom she enjoyed. She always enjoyed the company of women and was often the object of crushes to which, however, she never reciprocated. A short time before her return to the United States she seems to have been infatuated with a Balkan officer (her first love affair—age 29) but thought she would not be happy living in the Near East. Her attention was soon afterward attracted to a South American, who is said to have been on the point of proposing to her on an automobile ride when a slight accident occurred in which the young man's nose was slightly injured. From that time on the patient avoided the man. She returned to the United States tense, on edge, insecure. Soon afterwards a loving friendship with a woman was disrupted on account of the patient's

interest in another girl. It was at that time that she began to have a number of physical complaints: dysmenorrhœa, constipation, cramps, headaches, etc. A very short time after the breaking off of her friendship she went to teach in one of the western states. There she became attached to a girl and both soon recognized a reciprocated, frank homosexual love; the patient promptly left her position and returned East. Her complaints, especially with reference to the gastro-intestinal tract, increased; a uterine suspension was performed (four years before admission). She wandered from one hospital to another, was finally brought to Bloomingdale Hospital. A shut-in, undemonstrative person, she divulged very little. Her ideas of unreality developed more definitely; she had "no heart, no pulse—just a quivering." She attempted to injure herself. She was responsible for many crimes. She "ate" human flesh. She developed auditory hallucinations. She said she was "dissociating herself from words." She had very tense moments of what appeared to the homosexual panics, during which she would strike the nurses and patients about her.

This case is quite typical and the rôle of the homosexual mechanisms is sufficiently transparent for us to pass this case without making any comment for the present.

The next case:

CASE 2128.—A married woman of 36. Her mother was a high-strung, hysterical individual to whom the patient was greatly attached. Her father was a man who used to "make failures out of his successes." The patient was the fourth in the family; a rather precocious child, she talked and walked early and is said to have been a tom-boy. She grew up to be a normal girl; healthy, industrious and showing good executive ability. When her father lost his money she began to look after a number of his business affairs very successfully; her attitude toward her father's failures was interesting. Thus, at the time of the last failure (she was then 25 years old), she took the attitude that her mother had been badly treated and night after night would fall into a furious temper and scold her father until he was forced to leave the house. She never had any interest in men, and never had any love affairs, but married at the age of 25 after being persistently courted; her sexual demands were not great. Soon after marriage her husband went overseas (it was during the war). Four years after marriage a child was born; after that contraceptives were used. She said she wanted to have another child, but financial difficulties would not permit it. Her psychological make-up was that of a prudish, reserved, shut-in person, who was generous and kind and moderately sociable. She was very secretive about sex matters. There is no history of masturbation. She liked people who were successful and was rather irritable with her father and husband. She loved the child and took good care of him.

About a year and one-half before admission to the hospital the patient's mother died. The patient did not mourn her openly, but it was noticed that she became irritable and quite unreasonable in her demands. The night

after her mother's death she was found lying under a kitchen table; when compelled to get up, "I must have been asleep," was her only comment. About 10 months later it was noticed that she was becoming gradually more languid and would lie for hours on a couch with her eyes closed, or fixed upon the floor. She gradually developed the delusion that a neighbor was in love with her. She developed ideas of reference. She thought something was wrong with her digestion. She was convinced she had cancer. She saw meanings in things. She developed auditory hallucinations of apparently homosexual nature; the patient would only hint at what the voices told her: "A circle was working against me, because they don't want a woman in business." "A funny thing happened the other day. This side got all creepy and crawly (left side) and then I seemed to pass urine all of a sudden." She spoke of her boy (now eight years old) with indifference. She developed a perplexity state and in response to hallucinations would try to assure the physician that she had nothing to do with sex and that she was not a half woman.

Interesting as this case may be, we shall avoid going into the details of the many mechanisms at work and thus try to avoid obscuring the main issue, which is the question as to whether there is a difference between usual schizophrenias and post-partum schizophrenic reactions. Phenomenologically, *i. e.*, in the older Kraepelinian sense, there seems to be no difference between these schizophrenias; even the fact that the post-partum schizophrenic psychoses show a tendency to develop in the thirties is not exceptional; a number of women of the same age group develop the same clinical type of mental disorder regardless of childbirth. However, if we study the trends of the patients and examine them in the light of the patient's histories and personalities, as well as in the light of dynamic psychology, some differences become rather suggestive.

Thus, in the case which was last cited, we find that the patient's solution of the Oedipus situation is somewhat different from that of the post-partum schizophrenias; she was attached to her mother, helped father to support her mother, scolded her father for his failures, etc.; in other words, she appeared to have assumed (unconsciously, of course) a masculine rôle in order to supplant the father and thus get him out of the way; it was not a love for him that made her identify herself with him, but a desire to get rid of him.

There is another point of difference between this case and the post-partum schizophrenias; her unconscious assumption of the

masculine rôle does not appear tinged with anal characteristics; as a matter of fact the castration complex here does not appear to be the pivotal emotional element of the psychosis; it does manifest itself occasionally, of course: thus, her sudden impulsive passing of urine is quite suggestive, but this regressive tension as a result of penis envy shows no evidence of being of the revenge type, *i. e.*, it does not appear to have followed the path of anal-sadistic regression as it usually does in post-partum schizophrenias. Her frigidity too, therefore, was not as complete as that of the post-partum schizophrenias where the anal cathexis appears to be retained and thus to prevent the possibility of reaching even approximate vaginal erotism. The patient's attachment to her mother would naturally imply a partial identification with the mother, signs of which she had actually shown in her psychosis (she was a "half woman"; she lay under the kitchen table as if dead); such an identification, even though partial should naturally attenuate (as it actually did) the patient's possible negative attitude towards motherhood and therefore childbirth could not be for this patient as traumatic and catastrophic as it is for the post-partum schizophrenias.

The same points of differentiation from the post-partum schizophrenias, I have found hold for many other cases of schizophrenia in women. If the homosexual component is strong enough and is based on another set of constellations than the one found in the post-partum schizophrenias, the difficulty in adjustment, it is found, could be observed much earlier; these patients succeed in avoiding marriage altogether (*cf.* the case of the unmarried woman of 37) and the break comes later on; or, if they do marry, they break soon afterwards regardless of childbirth. We may mention parenthetically that a somewhat similar process is observed in schizophrenic men: Some break when faced with the necessity of getting married; some develop so-called homosexual panics soon after marriage or after the wife bears a child. A parallel study of the psychodynamic factors which operate in these males would undoubtedly throw much light on the whole problem.

VI.

Reference was made to specific psychodynamic constellations which appear to stand out more prominently in the post-partum

schizophrenic psychoses, while the other constellations although present occupy a secondary place. Let me explain this conception briefly.

The stages which the human being goes through in the development of his personality are identical in all; what makes one person different from another aside from constitutional factors is the fact that the forces coming from various sources of libidinous energy in their evolution towards the adult level undergo uneven modification and now one, then the other force appears to make a more definite imprint upon the growing personality; thus we have the anal, the oral, the urethral types; this does not mean that the anal personality is devoid of any oral or urethral traits; these are present in one form or another in the anal character, but they are overshadowed, as it were, or subservient to the stronger anal tendency. The same may be said, *mutatis mutandis*, of the oral or any other type of personality.

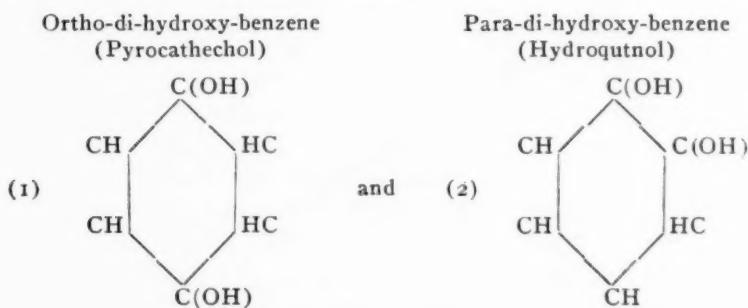
We may conceive of a hypothetical well-integrated personality schematically (*cf.* Fig. A, 1, page —) as a well proportioned, geometrically perfect double cone, formed by the revolution of all the libidinous energies around an axis representing the modified Œdipus complex.

The numerous types of energy (oral, anal, urethral) which are deeply rooted in the primary narcissism of the individual and which gradually reach the genital level and thus the Œdipus situation continue to grow and evolve and undergo modification until they achieve a modified sublimatory level in the adult personality. On the other hand, the Œdipus complex loses its genital frankness and incestuous nakedness and in such forms as "love in general," altruism, etc., enters into the adult personality to occupy a central point to which the various modified energies from anal, oral and urethral and other sources are drawn to be utilized by the adult personality. It is in this way that the total personality then appears to revolve around the Œdipus complex as an axial line and forms a double cone, the lower part of which presents the older reservoir of libidinous energy. If we try now to imagine a woman in whom the Œdipus complex happens to be too strong at one or another level of its active development, "the axial Œdipus line" will then never be actually completed; it will become a weak artificially stretched thread; any situation (such as child-

birth) which calls upon fully mature, individual responses to life will make this thread snap, the woman will find herself back at the Œdipus level; moreover, the variety of libidinous energy with which she will find herself primarily equipped at that moment will be the one which will be utilized by the woman for her regression to a lower level. The Œdipus axis having been broken, the line of energy which happens to be the strongest becomes then a new axial line of the total personality.

In our cases of post-partum schizophrenia this "second axis," regressive in nature of course, happens to be the anal component of the libido. It is around this axis that the total personality begins to revolve and instead of a geometrically perfect double cone, we have a distorted, eccentric figure (Fig. A, II, page 41). The constellation, or configuration around this axis as far as our cases are concerned could be formulated as follows: Positive Œdipus complex; penis envy of the revenge type combined with a strong anal cathexis.

It should be reiterated and emphasized again that when I speak of constellations I do not mean to exclude the other libidinous components of the personality. All the components are always present in every personality; it is a question of constellation only, of stereo-psychological construction, as it were. In this respect the phenomenon finds its parallel in the conceptions of stereo-chemistry.* Let us take as an example two of the di-acid phenols, the so-called di-hydroxy-benzenes; the molecular formula of both is one and the same, $C_6H_4(OH)_2$; structurally, however, they are represented by the following figures:



* I owe this idea to my colleague, Dr. T. M. French, of Bloomingdale Hospital.

Both substances appear in crystals, both belong to the same group, both are soluble in alcohol and ether but the first is soluble in ordinary cold water and has a melting point of 104° C., while the other is soluble only in hot water and has the much higher melting point of 169° C.

This excursion into structural chemistry is made not because it appears to present merely a graphic analogy with the structural idea of psychodynamic constellations, but because, I believe, this type of structuralization of the dynamic factors in psychopathology is just as justifiable as in chemistry; in both it is impossible to prove that it is so and yet in both it appears to work. The reaction types (A. Meyer) into which we like to group some personalities are probably produced by some such mode of constellation of primary factors as the post-partum schizophrenias suggest.

Freud once said that psychoanalysis is related to psychiatry as histology to anatomy, but since we have learned more about the "psycho-histological" structure of the mind, the newer dynamic psychology becomes more and more useful as the bio-chemistry of the human mind.

VII.

The practical importance of differentiating the post-partum schizophrenias from the rest of the schizophrenias is more than of purely academic importance. The study of these reactions sets forth a problem of mental hygiene, giving to the latter some criteria for the estimation of the woman's psycho-biological capacity, which might be applied before she enters a severe psychosis.

It would lead us too far afield if we embarked now upon a discussion of the practical details of the various methods of approach, which might be applied in the prophylactic treatment of women, who are destined to develop post-partum schizophrenias; this, however, may be said in conclusion:

* Too little attention has been paid to the importance of sexual frigidity in women. The sexually frigid man is biologically well protected; he becomes impotent and thus avoids that he wishes to avoid. Moreover he considers impotence an illness and unusually wants to be treated for it. The prevalent traditional opinion with regard to women is that they are usually frigid; that it is not an

illness and that they will "get over it"; if they do not get over it however, they are not relieved by society from the necessity of functioning biologically as if they were not frigid, *i. e.*, not impotent. If we bear in mind that amongst the frigid women there are a number of potential post-partum neurotics and psychotics and that frigidity is a common expression of a number of psychodynamic constellations, some of which are benign, some ominous, we might perhaps find a new and fertile soil for successful prophylactic results.

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DISCUSSION.

DR. HARRY STACK SULLIVAN (Towson, Md.).—I think there is something peculiarly fantastic in my discussing a paper on post-partum psychoses, as I have not worked with a woman patient in years. But I wish to compliment Dr. Zilboorg on this sort of research, which promises to be so very, very useful.

Here is a minute study of what has been actually going on as the situation developed which eventuated in psychoses. It seems to me that just this sort of study will give us a great deal towards the answer of the nature of schizophrenia and what is to be done with it. The occurrence of these illness in the two epochs, immediately preliminary to marriage when certain of them appear, and in this peculiar connection with the second or third or fourth child, promises to contribute a good deal.

I hope Dr. Zilboorg continues this work and that he gives plenty of his results.

MEMBER.—Inasmuch as it has been so widespread among people, I would like to hear Dr. Zilboorg discuss the infanticidal tendency of the same and opposite sex. Among quite a number of the races there has been the tendency to kill the male child. I was wondering if in his study of this group there has been any differentiation in regard to the sex of the child.

PRESIDENT MEYER.—Is there any further discussion? If not, I should like to ask Dr. Zilboorg to close the discussion.

DR. GREGORY ZILBOORG (White Plains, N. Y.).—Some of you may perhaps remember the fact I asked Dr. Saunders this morning what kind of psychoses the woman who showed psychogenic rectal pains developed. One fact that she proved to be a case of schizophrenia appears to corroborate my hypothesis.

I didn't study the infanticidal impulses of many women, because these impulses are more prominent in post-partum depressions, a study of which will follow later.

There is one point I should like to make. It will take me just about 60 to 70 seconds. I forgot a very excellent diagnostic, or, should I say, prognostic, point that is prominent in post-partum schizophrenic cases. The woman living unconsciously as a male and wanting to be a male, submits to social demands to be a woman and gets married. She makes relative peace with herself in that she accepts one child, but this is what she does: The child is born. She usually gives the child to a housekeeper or to a nurse. For some reason or another, she has no milk, and she begins to play the part of the man, contributes to the support of the family. She doesn't conceive, sometimes, for a year, two, five and ten years. Then she conceives accidentally and gives birth to a child and breaks into a schizophrenic reaction. This is a prognostic point that I think is of importance.

Whenever a woman does not behave according to this pattern, you usually find in her definite oral or urethral reactions. A woman of 38 said something was creeping up her knees, and as she was talking to the physician about it, she suddenly urinated spontaneously and entered into a state of confusion. She was a schizophrenic who showed a severe mother attachment; she had a boy eight years old. Her psychosis was not related to childbirth.

Notes and Comment

THE ROYAL MEDICO-PSYCHOLOGICAL ASSOCIATION.—It was the happy privilege of the editor of the JOURNAL to attend the eighty-seventh annual meeting of the Royal Medico-Psychological Association at the West Riding Mental Hospital, Wakefield, Yorkshire, England, on July 11, 12, 13, 1928.

The president-elect was J. Shaw Bolton, D.Sc., M.D., F.R.C.P., medical superintendent of the hospital and professor of psychiatry in the medical school of the Leeds University.

The meetings of our sister association in England are conducted in a somewhat more formal manner and with greater observance of "pomp and circumstance" than one observes at our own meeting.

At the opening session the retiring president presides and at this time much business is transacted which the American Association conducts at its Council meetings, satisfying itself with accepting or amending the reports of that body.

At the conclusion of this session, the incoming president is invested with the president's badge. Prof. Shaw Bolton wore his academic gown and his first official act was to present the Ex-President's badge to his predecessor, Dr. Marr, expressing the hope that Dr. Marr would for many years wear the badge at the Association's meeting as an earnest of the Association's gratitude for his services.

Dr. J. R. Lord, editor of *The Journal of Mental Science*, who acted as Secretary in the absence of Dr. Worth who was unavoidably detained, then presented to the President the delegates from foreign psychiatric societies; these were Dr. Hans Evensen, of the Norwegian Medico-Psychological Association, Dr. August Wimmer, Professor of Psychiatry in the University of Copenhagen, delegate from the Danish Association of Alienists, and the writer, who had the honor of representing The American Psychiatric Association.

Dr. C. Hubert Bond, who was in the morning session elected an Honorary Member, was also presented. Dr. Bond is a Commissioner of the Board of Control, and was President of the Association in 1921-22.

Two members of The American Psychiatric Association were elected Corresponding Members, Dr. George H. Kirby, of the

Psychiatric Institute and Hospital, Wards Island, N. Y., and Dr. Malcolm Bliss, of St. Louis, Mo., as was also Dr. August Wimmer, of Copenhagen.

The President's Address was delivered following the presentation of the foreign delegates and the presentation of the Gaskell Gold Medal and Prize for 1927 to Dr. Elizabeth Casson. The President remarked that this was the second time that the highest prize given by the Association was presented to a lady.

The title of the President's Address was: The Evolution of a Mental Hospital—Wakefield, 1818-1928. The address sketched the organization of the hospital from its opening in 1818 under Dr. W. C. Ellis, afterward Sir William Ellis, who entered upon his duties in November of that year.

Wakefield had the benefit, in its inception as the West Riding Asylum, of Yorkshire, of the counsel of Samuel Tuke, who was requested to prepare instructions for the architects submitting competing designs.

Since the time of Sir William Ellis, who was transferred to the new Asylum at Hanwell in 1831, the West Riding institution has had the good fortune of having as medical directors many men who have contributed much to the progress of psychiatry.

Among these have been Sir James Crichton-Browne, Dr. Herbert Major, Prof. W. Bevan-Lewis.

In 1873, while under the medical directorship of Crichton-Browne, Ferrier carried on at the laboratory of the West Riding Asylum experimental researches on the localization of cerebral functions and during Dr. Browne's term of office there were published the six volumes of the West Riding Medical Reports.

The Annual Dinner was held on Wednesday evening in the Hall of the new building for acute cases and was in every respect a most enjoyable affair.

The guests and members were most graciously received by Prof. and Mrs. J. Shaw Bolton just prior to the dinner. The tables were tastefully decorated, as well as the spacious hall. Among the decorations one's attention was attracted to the lamp shades which bore the coat of arms of the Association.

The members and guests, many of them, wore orders, decorations and emblems of office which, with the toilets of the ladies,

added to the general brilliance. The after-dinner speeches were all of a high order.

On Thursday and Friday the sessions were devoted to the reading and discussion of papers. These were some thirteen in number, one of which was read by title and referred to a subsequent meeting to be read and discussed.

These papers were well prepared and were, with one exception noted, discussed in an interesting and illuminating manner.

The social functions, in addition to the Annual Dinner, were so arranged as to give relaxation and entertainment to all without interfering with the general program of the meeting.

A lunch was served at the hospital on each day of the meeting and added greatly to the general social feeling.

On Wednesday afternoon the President and Mrs. Bolton were "At Home" to members and their ladies and on each day of the meeting there were excursions to various points of interest for those who had time or inclination to take them.

On Thursday afternoon the Wakefield Mental Hospital Athletic Club entertained at tea on the lawn, which was for all who accepted the hospitality of the Club, a most enjoyable occasion.

It is nearly half a century since we first visited the West Riding Hospital. At that time the medical director was Dr. Herbert Major, the senior assistant, Dr. W Bevan Lewis, afterward the successor of Dr. Major. We then found the same generous hospitality that greeted us on this more recent occasion and evidences of the same aggressive spirit in meeting the problems confronting the Director and his staff which is noted in the hospital administration of today.

We attempted to convey to our host and to the members of the Association the greetings of The American Psychiatric Association and its interest in the work and welfare of its British fellow workers in the same field—our personal feelings it is impossible to express adequately. Several members of the British Association expressed the wish that the two Associations might at no distant day hold a conjoint meeting, a wish in which we fully concur. Might not the year 1930, when there is to be an International Congress of Mental Hygiene in Washington, which many of our British friends will doubtless attend, be a favorable time?

Association and Hospital Notes and News.

THE ASSASSINATION OF DR. RANSOM H. SARTWELL.—The daily papers have published a brief account of the death of Dr. Ransom H. Sartwell, Medical Superintendent of the State Hospital for Mental Diseases, at Howard, R. I., and many of the readers of the JOURNAL have doubtless read of his decease.

At our request, Dr. Arthur H. Harrington, of Providence, R. I., Dr. Sartwell's predecessor at Howard, has sent the JOURNAL a more complete account of the deplorable affair.

On the evening of January 11, Ransom Harvey Sartwell, M. D., Superintendent of the State Hospital for Mental Diseases at Howard, R. I., met his death without the slightest warning at the hand of an escaped patient, who shot him, killing him instantly.

During the early evening of this day Dr. Sartwell had been a speaker at one of the local churches at a "Father's Night" meeting. Returning to the hospital shortly before 10 o'clock, he had seated himself in the living room on the first floor of the superintendent's residence. As he sat in his chair he was engaged in writing the answer to a telegram. The shades of the windows had not been drawn. He was about 15 feet from a window. It appears that the slayer thrust the muzzle of a double-barrel shotgun through the glass of the sash and immediately discharged both barrels, most of the shot taking effect on the left side of the doctor's head and face. The doctor's wife was in an adjacent room. On hearing the shot she rushed to her husband but he was then dead, sitting in the chair with body slightly slumped, but his fingers grasping the pencil with which he had just been writing.

The patient who perpetrated this deed had been an inmate of the hospital since 1902, having been transferred from the Rhode Island State Prison where he had been undergoing a sentence for shooting with intent to kill a young woman with whom he was in love but who did not favor his attentions. His intended victim in this instance survived. This patient was of a decided paranoid type and has made his escape from the hospital several times. The last time was October, 1927. He appears to have gone to the West and had, it seems, returned to Rhode Island within a comparatively short time. He was found and taken into custody on the second day following the murder. When apprehended he stated at once that he was the man who had killed Dr. Sartwell and that it was the best thing that he had done yet and that he had other officials marked out for destruction. The missiles which did their deadly work with immediate effect were heavy shot, which had been formed by hammering together pieces of metal.

Dr. Sartwell was in his 43d year and had entered upon the superintendency of the State Hospital for Mental Diseases at Howard, on October 1, 1926, having previously had service as Assistant Superintendent at Foxboro State Hospital and at Worcester State Hospital. He came directly to the State Hospital in Rhode Island from the Rhode Island State Infirmary where he had been Superintendent for about two years.

This event has cast a great gloom, not only over the hospital, but the whole community. Following the first shock of the affair there was intense anxiety everywhere until it was known that the insane perpetrator had been captured.

THE AMERICAN PSYCHIATRIC ASSOCIATION, OFFICERS AND COMMITTEES, 1928-1929:

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FOR TWO YEARS.

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Additional members will be added to this committee.

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FOR THREE YEARS.

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S. Stanley King, M. D., New York, N. Y.
 Alfred C. LaBine, M. D., Detroit, Mich.
 Daniel O'Gorman Lynch, M. D., Brockville, Ont.
 William C. M. Scott, M. D., New York, N. Y.
 Marion Elizabeth Snavelly, M. D., Kings Park, N. Y.
 Max O. Wolfe, M. D., Detroit, Mich.
 Persis Elfeld, M. D., Farnhurst, Del.
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 J. W. MacIntosh, M. D., Charlottetown, P. E. I.
 David Edward McBroom, M. D., Faribault, Minn.
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 Mary G. Schroeder, M. D., Chicago, Ill.
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 Paul T. Crosby, M. D., Chelsea, Mass.
 Julia Deming, M. D., Boston, Mass.
 Edward Delehanty, M. D., Denver, Colo.
 Max Levin, M. D., Philadelphia, Pa.
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 Gerald H. P. Pearson, M. D., Bywood, Pa.
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NOTICE.—The names of applicants for fellowship or membership to be presented at the annual meeting for 1929, must, by rule of the Association, be published in the JOURNAL at least two months prior to the meeting. It will therefore be necessary that the names of such applicants, with the necessary credentials, be in the hands of the Secretary, Dr. Clarence O. Cheney, Hudson River State Hospital, Poughkeepsie, N. J., before February 20, 1929.

Abstracts and Extracts.

The Incidence of Intracranial Tumors Without "Choked Disk" in One Year's Series of Cases. WILLIAM P. VAN WAGENEN (Amer. Jour. of Med. Sciences, 1928, Vol. CLXXVI, 346) reviews the literature on brain tumor occurring without choked disk and calls attention to the fact that it is becoming more and more common to regard this as a late symptom of intracranial new growths. He considers that choking is mainly mechanical in character and depends primarily on interference with cerebrospinal circulation, while the actual size of the tumor is a secondary factor and hyperplasia of brain tissue in connection with brain tumor plays a minor rôle. He gives illustrative case reports. Of a total of 461 cases admitted to the Neuro-Surgical Service of the Peter Bent Brigham Hospital, Boston, Massachusetts, during the year 1924-1925 he finds 365 (79.1%) in which the diagnosis of brain tumor was considered certain or probable. Of these 145 (40%) were histologically verified at operation or autopsy. In addition 9% had been verified at some previous admission; 22.2% were unverified; and 29% were regarded as tumor suspects. 11.7% of the verified tumors failed to show choked disk at the time of admission to the hospital. Of 81 unverified cases presenting a full-blown brain tumor syndrome, 11.1% had normal eye grounds when first observed. In 50% of the cases reported there was evidence of increased intracranial tension and the author considers that failure of the disks to undergo choking does not mean that increased intracranial tension may not have been or be present. Calcification was demonstrated in 30% of the cerebral tumors, both verified and unverified, without choked disks.

EBAUGH.

The Problem Employee—His Study and Treatment. V. V. ANDERSON (The Personnel Journal, 1928, Vol. VII, 203) finds among mercantile employees 19% of the sales people and 23% of the non-sales force to be problem individuals presenting conditions that caused their department heads to question their value as personnel risks to the store. After several months' work on 500 such problem cases, he finds that 67% are still in the store, 23% have been laid off, 7.8% have resigned, 2% are pensioned, and .2% are out on mutual aid. Of the active cases 40% have been adjusted and furnish no longer a problem to their departments, 44.7% are still under treatment by the psychiatric personnel department. All of these cases are treated in a typically modern common sense psychiatric manner. The author calls attention to the enormous saving for industry in dollars and cents that is brought about by the adjustment of 50% of the problem employees.

He divides the problem cases into four groups: Those presenting difficulties of personality; those consisting of job mal-adjustments; those which cannot be adjusted under store conditions; and those in which adjustment was attempted but was unsuccessful. He presents well-worked-out case records to illustrate cases in each group.

EBAUGH.

Influenza in Relation to the Onset of Acute Psychoses. T. C. GRAVES (The Jour. of Neurology & Psychopathology, 1928, Vol. IX, 97) classifies psychoses following influenza as follows: 1. An immediate group including cases in which a profound general toxemia is predominant, cases in which toxemia and mental symptoms are both marked, and cases in which mental symptoms are the predominant condition. 2. A delayed group in which there is no immediate relation between the subsidence of the influenzal symptoms and the development of the manifestations of acute mental disorder. He illustrates each group with one or two cases but fails to give the total number of similar cases for any group or the total number of cases of psychoses with influenza studied by him for this report. He concludes that, in person without psychotic inheritance but with pre-existing septic diseased states in the head (sinusitis, etc.), an attack of influenza may precipitate serious mental disturbance even though constitutional symptoms of influenza may be slight or absent. The pre-existing pathological processes may be responsible for pathological changes elsewhere in the body and from these further general toxemia may ensue. The mental symptoms and the corresponding pathologic conditions of septic foci with deficient or defective drainage may continue indefinitely, being subject to periods of exacerbations and quiescence. The usual influenzal symptoms displayed by a normal or otherwise relatively healthy person may show considerable differences from those occurring in persons with an existing chronic septic process in the head. "Within the skull, therefore, pathological processes may exist, the extent of which may determine the degree of mental symptoms displayed." (The illustrative cases appear to be selected rather than typically representative and the number is so small that, whereas it is true the cases cleared after removal of focal infections in the head, no conclusions are possible for we are aware of a large number of similar cases which have cleared without ever presenting any clinical evidence of sinus infection or other focal disease and, therefore, received no surgical treatment for such conditions.)

EBAUGH.

Major Hysteria with Attacks of Impaired Circulation of the Left Upper Limb. WILLIAM G. SPILLER (Jour. of Neurology & Psychopathology, 1928, Vol. IX, 113) reports a case of attacks of major hysteria occurring in a 19-year-old boy following two head injuries. The outstanding feature of these attacks was cyanosis with swelling of the left arm and forearm together with independent changes in the local blood pressure of the left

arm when compared with that of the right arm. On one occasion during the attack the blood pressure could not be obtained in the left arm, no auscultatory signs being present. The blood pressure during the attack was invariably lower in the left arm than in the right. In periods of relaxation following the attack the blood pressure was higher in the left arm than in the right. The cyanotic attacks could not be induced by suggestion but convulsive seizures accompanying them were influenced to some extent. The author discusses the relation of such hysterical seizures to similar attacks occurring in lesions in the thalamus as in post-encephalitic Parkinsonism. He believes that in this case the cyanosis and swelling may be due to a lesion in the region of the striate body but considers it more probably related to interference with the circulation of the subclavian vessels by voluntary or involuntary contraction of the deep muscles of the neck.

EBAUGH.

Exogene Faktoren bei schizophrenen Psychosen. M. FISCHER (Archiv für Psychiatrie und Nervenkrankheiten, 1928, 83. Band 5, 779) revives the question of the importance of organic injuries to the head and brain as etiological factors in schizophrenia. He reports six cases. Two of these were head injuries received during civil life, very severe in degree, following which outspoken schizophrenic psychoses developed. One was a case of catatonia in a patient with syphilis who had been treated with malaria. Another, after an initial schizoid episode from which the patient had recovered, contracted syphilis and was precipitated into a second psychosis of a similar nature. The remaining two occurred in association with head injuries due to bullet wounds of the head. The author discusses the relationship of these brain injuries to the etiology of the psychosis. He places schizophrenia as primarily endogenous in origin. The latent tendency may be brought out by various precipitating factors, including brain traumata, and the psychosis so produced, he believes, should be called schizophrenia, rather than post traumatic psychoses. He feels that if the exogenous factors are of importance etiologically, then there may be some hope of therapeutic approach from this angle.

EBAUGH.

Book Reviews.

Insanity and Law, A Treatise on Forensic Psychiatry. By H. DOUGLAS SINGER, M.D., M.R.C.P. (London), Professor of Psychiatry, University of Illinois, College of Medicine; formerly State Alienist and Director of the State Psychopathic Institute of Illinois, and WILLIAM O. KROHN, A. M., M. D., Ph. D., Author of Practical Lessons in Psychology; Head of Department of Psychology at Western Reserve University, and at the University of Illinois. (Philadelphia: P. Blakiston's Son & Co., 1924.)

The plan of this book is to discuss, first, psychiatric reactions and "forms of insanity," and then the legal aspects of "insanity" and its relationship to guardianship, contracts, marriage, torts, wills and crime.

This book is a convenient, rather extensive collection of definitions, opinions, court-holdings and psychiatric convictions on the points mentioned. The psychiatric pictures are well described and the point of view is fairly modern in spite of the persistent use of the word "insanity." The book suffers, in the reviewer's opinion, from having been written from an obsolescent point of view. It is a little more progressive than the old books of the same sort, but it cannot possibly pass muster as an expression of a modern psychiatric point of view. It probably does not intend to do so but was written with the idea of collecting the past psychiatric legal experience in a concise form for ready reference on the part of physicians and lawyers not psychiatrically trained. The preface says as much.

The chief fault of the book can be illustrated by the definition of "insanity." "An insane person or lunatic (not being an idiot or imbecile) is one in whom there exists, due to disease, a more or less prolonged deviation from his normal method of behavior and who is therefore incapable of managing his own affairs or transacting ordinary business, who is dangerous to himself, to others, or to property, or who interferes with the peace of society." Now with the general content of this definition probably few of us would wish to quarrel. But with the statement that an insane person is one in whom this condition exists is absolutely contrary to what many of us believe and preach. What many of us very strongly feel is that an insane person is one such as this who has been officially passed upon by a commission, or jury, and declared by that commission, or jury, to be in this condition. The difference is very important. It is comparable to the distinction between living together and being married. A man and woman may live together and aside from the interpolations of common law they are not married; on the other hand such a pair may be declared married only by certain designated authorities. Consequently to define an insane person as one in whom this condition exists is to assume that "insanity" is a definable condition, which it is not any more than marriage is.

From this standpoint the rest of this discussion from these and other authorities (and none of them any more clear) as to there being a difference

between medical and legal "insanity" is ridiculous. There is never any serious question as to whether a given couple is married or unmarried. It is a question of fact and record which is easily ascertained. There are not two kinds of definitions of marriage. There need not be any two conceptions of "insanity."

The practical importance of this is that a psychiatrist can qualify better than any conceivable jury to decide whether there exists in an individual a "more or less prolonged deviation, etc." A psychiatrist may say such a condition exists and if a judge or a jury wants to believe him they can pronounce him insane, but all a psychiatrist has any business saying is that such a condition does or does not exist, and that condition certainly is not "insanity." If this idea were adhered to, no psychiatrist could ever become entangled on the witness stand.

There are a number of flaws in the definition entirely aside from this which ought to be mentioned. In the first place, the phrase "due to disease" is a debatable clause which is unnecessary and merely gives the opponents of the thesis something to argue about. What is the disease process, for example, in a case of schizophrenia? We call it a disease, but some others might not. The word "normal" is an unfortunate word. If "usual" was meant, it should have been used. Furthermore, it is likely that the deviation should be defined as being not only apart from the individual's usual behavior, but beyond the accepted limits of the community in which he resides. Finally, after the clause ending with the word "business," there should probably be an "or." Many cases have come to grief because the conjunction between the word "business" and the word "who" was not specified. An attorney arguing against the commitment of a certain individual will insist that the conjunction "and" is implied and will maintain that while up to this point the accused may be "guilty," it cannot be shown that he is dangerous and that this is an "and" clause and is therefore contingent to the commitment. Most psychiatrists would certainly regard it as an "or" clause, but the carelessness in omitting this specification further impairs this definition.

KARL A. MENNINGER.

Insanity and the Criminal Law. By WM. A. WHITE, M. D., Superintendent, St. Elizabeths Hospital, Washington, D. C. (New York: Macmillan Co., 1928.)

This is a second edition of Dr. White's most readable book. It remains at the present time the best presentation we have in book form of the psychiatric views of crime and punishment. It is full of ideas, as is everything its author writes, and no one can read the "Chapter of Blunders" without becoming evangelical with regard to the necessity of educating the public and changing the legal system.

The report of the Committee on the Legal Aspects of Psychiatry of The American Psychiatric Association came out too late for inclusion as an appendix, but the spirit of the report is already incorporated in the book, or perhaps it is more accurate to say that the spirit of the book is incorporated in the report.

KARL A. MENNINGER.

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I. Some Factors in the "Mechanical Theory of Epilepsy" with Especial Reference to the Influence of Fluid, and its Control, in the Treatment of Certain Cases. <i>Temple Fay</i>	783
II. The Relation of Certain Physicochemical Processes to Epileptiform Seizures. <i>William G. Lennox and Stanley Cobb</i>	837
III. Clinical Phenomena Associated with Depressions, Anxieties and other Affective or Mood Disorders. <i>Lloyd H. Ziegler</i>	849
IV. A Study of Psycho-Dynamic Patterns. <i>Gladys C. Terry</i>	881
V. Physical Findings in Schizophrenia. <i>Karl M. Bowman and Alice F. Raymond</i>	901
VI. Focal Infection in Teeth. <i>George W. Henry and Mary C. H. Doyle</i>	915
VII. Psychoanalytic Mechanisms in Clinical Psychiatry. <i>William Malamud</i>	929
VIII. Notes and Comment: Correction	942
IX. Association and Hospital Notes and News: The Eighty-fifth Annual Meeting of The American Psychiatric Association.—Additional Committees of The Association.—Additional List of Applicants for Fellowship or Membership in The American Psychiatric Association.—The First International Congress on Mental Hygiene.—Reappointment of Drs. Parsons and Kieb	944
X. Abstracts and Extracts: Emotion-Choc et Confusion Mentale. Magalhaes Lemos.—Difficultes du Diagnostic Differentiel Anatomo-Clinique. Entre la Sclerose Laterale Amyotrophique et les Paralysies Pseudo-Bulbaires. Bertrand and Boeff.—An Experiment in Character Measurements. John N. Washburne.—Maladjustment of Children. Meta L. Anderson.—Crime and the Conflict Process. E. H. Sutherland.	954
XI. Book Reviews: Folklore and the Teeth. By Leo H. Kanner (New York: Macmillan Co., 1928).—The New Criminology: A Consideration of the Chemical Causation of Abnormal Behavior. By Max G. Schlapp, M.D., and Edward H. Smith (New York: Boni and Liveright, 1928).—The Ways of Behaviorism. By John B. Watson, A.M., Ph.D., LL.D. (New York and London: Harper Brothers, 1928)	958
XII. In Memoriam: Ranson Harvey Sartwell, M.D.	693

AMERICAN JOURNAL OF PSYCHIATRY

SOME FACTORS IN THE "MECHANICAL THEORY OF EPILEPSY," WITH ESPECIAL REFERENCE TO THE INFLUENCE OF FLUID, AND ITS CONTROL, IN THE TREATMENT OF CERTAIN CASES.*

By TEMPLE FAY, M. D.,

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(From the Daniel J. McCarthy Foundation of the Philadelphia Institute for the Study and Prevention of Nervous and Mental Diseases, and the Department of Neurology, University of Pennsylvania School of Medicine.)

INTRODUCTION.

The control of the major form of the convulsive state has been considered in this paper, from the clinical standpoint.

The correlation of the large amount of recent information, regarding its practical significance in the treatment of certain types of cases is discussed. The indication for treatment in this group of cases is analyzed and the results so far obtained reported.

With the advance of neurosurgery in the past ten years, specific demands for research along various lines, have widened our concept of the entire problem of cerebrospinal manifestations. Opportunities for viewing the human cortex during a convulsive attack have been afforded a number of investigators. Air injection of the ventricles and subarachnoid spaces has given added information. The physiology of the cerebrospinal fluid system has opened up new angles of interpretation. The physiologist, biochemist and neuropathologist have made many important significant observa-

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Section on Convulsive Disorders, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

tions. We may therefore reconsider the subject, perhaps with profit, in the light of the added information available.

The attempt has been made to utilize a large number of these recent determinations from a clinical viewpoint, so as to construct a working hypothesis that may lead to a more rational means of treatment, in controlling some of the factors underlying the convulsive state.

SCOPE OF THE PAPER.

After an extensive survey of the literature, a careful analysis was made of the evidence so far presented, regarding the convulsive state, with the idea of determining if a common denominator, or small group of factors existed, with the frequently divergent views recorded, and the wide range of data accumulated from many angles.

With the selection of what appeared to be the most frequent and constant factors, supported by much collateral evidence, a re-assembling of the facts concerning certain types of cases, in what seemed to be their sequence and importance, led to the construction of an hypothesis which was then carried into clinical use and tested.

This paper deals with the basis for this hypothesis, and the results of the clinical determinations obtained so far. It is specifically concerned with the behavior and significance of accumulations of subarachnoid fluid and cortical edema. The relation of this factor to the convulsive state, and the results of limitation of fluid intake, producing dehydration are given detailed consideration.

After careful consideration of the subject, the view expressed by Wilson,¹² that epilepsy is only a symptom accompanying various diseases and conditions, seemed most acceptable, because of the rapid shifting of the "essential" or so-called "idiopathic" group, into the "symptomatic," as our diagnostic methods have increased, giving us a clue to the conditions responsible for the onset of the seizures; or by gross changes shown by encephalography, not demonstrable in other ways.

As we are not concerned with the many subdivisions or accepted types and classifications (for which see Jackson,¹³ Gowers,¹⁴ Frisch,¹⁵ Spratling,¹⁶ Wilson,¹⁷ Redlich,¹⁸ Turner¹⁹ and Muskens,²⁰) but more with the underlying factor or factors in each group, activating the final common pathway, the term "convulsive state"

will be used as all inclusive. As many of the conditions as possible giving rise to seizures will be considered in the light of our present understanding, in relation to the common factor which may be present, or has been demonstrated for each.

PATHOLOGICAL CONSIDERATIONS.

HISTOPATHOLOGY.

It is well known that no constant pathological lesion has been found characteristic for the various types of the convulsive state. Spielmeyer,²⁰⁰ has recently noted minute lesions of softening in the cornu ammonis, and also in the cerebellum. The changes simulate those seen in an endarteritis. These small lesions may lead to a gliosis. The changes noted in the brain tissue following a seizure were similar to those seen in *acute cerebral edema*. Bratz¹² who had noted earlier a hypoplasia in the cornu ammonis, was substantiated by Hulst.¹³ These changes are characterized by Oppenheim¹⁴ as not pathognomonic, but rather degenerative, and are found in non-epileptics, showing hereditary mental deficiencies. Weimann¹⁵¹ holds a similar view. Chaslin,^{15, 16} describes a proliferation of glial fibers in the external layers of the cortex, and these findings were substantiated by Bleuler¹⁰ who was able to demonstrate this sclerosis grossly. More recently, Geitlin¹⁷ has noted an embryonal form of tuberous sclerosis existing in the cortex, which he believes responsible for the production of epilepsy.

GROSS NECROPSY PATHOLOGY.

The components underlying normal brain weight have been discussed by Donaldson.¹¹ Statistical reports regarding weight of the brains in epileptics vary from normal, to below normal, in different series. This is to be expected, depending upon the age of the patient, duration of the disease and type of case, and adds no tangible ground for comparison. The abnormalities of the brain are of some importance, especially in the group of feeble-minded with epilepsy in which there is evidence of failure to develop the frontal lobes, small atrophic convolutions, dilated ventricles, softening, tumors, inflammation, vascular abnormalities and gross changes noted in the pia-arachnoid and dura. Gregory of Craig Colony¹⁸ noted that almost 90 per cent of the epileptic brains in one series

showed gross lesions. An abnormal amount of subarachnoid fluid was present in a large percentage. Lind^m states, "In reviewing the postmortem findings in 259 cases, of these who have been either congenital mental defectives with epilepsy, or non-congenital mental defective epileptics, it must be acknowledged that there are

TABLE I.

PATHOLOGICAL FINDINGS IN 259 CASES OF EPILEPSY FROM LIND.

Thickening of the dura.....	99
Dura thickened and adherent to the calvarium.....	36
Dura adherent to calvarium but not thickened.....	14
Pia thickened	127
Pia thickened and adherent.....	20
Sclerosis of cornu ammonis.....	37
Hypergliosis of brain.....	63
Ventricles dilated	134
Ependyma of lateral ventricles granular.....	4
Ependyma of lateral recess of 4th ventricle granular.....	16
Ependyma of Calamus Scriptorius granular.....	18
Abnormalities of brain pattern.....	80
Hydrocephalus ex vacuo.....	20
Plaques Jaunes	11
Tumor of brain.....	9
Cerebral softenings	17
Pachymeningitis hemorrhagica	6
Atheroma of vessels of brain.....	23
Macroscopical changes in choroid plexus.....	7
Trephine operations	7
Flattened convolutions	8
Heterotopia	2
Internal Hydrocephalus	1
True porencephaly	1
False porencephaly	1
Asymmetry of hemispheres.....	15
Gross wasting of gyri.....	71
Old lesions in the brain substance not determined.....	7

certain changes occurring with a frequency requiring some explanation." His findings relative to the nervous system are given in Table I.

The significance of the outstanding items, such as thickening of the arachnoid, wasting of the gyri, hypergliosis and dilatation of the ventricles, cannot be ignored, and will be discussed later.

GROSS VITAL PATHOLOGY.

There are distinct differences in viewing the cortex of the epileptic at operation, while the vital functions are intact, and in observing the same area at necropsy. Alexander¹ in a treatise on epilepsy in 1889, called attention to the glossy appearance of the arachnoid, and collections of subarachnoid fluid. In 1911² he reported benefit from surgical drainage of these collections in patients suffering from convulsions. Dandy^{21, 22} has emphasized these collections of fluid and the characteristic milky appearance of the arachnoid. He points out the fact that this evident change in relations, so apparent at operation is usually lost after death. The neurosurgeon immediately knows he is dealing with an epileptic, or inflammatory brain by this thin, opalescent, and edematous arachnoid, all of which may be lost at necropsy, because of the escape of the subarachnoid fluid and the fixation of the tissues, as well as because of a loss of contrast in coloring seen in the living tissues. I have observed this characteristic appearance many times in various types of the convulsive state. Normal brain never gives this milky arachnoid.

It is interesting to recall here confirmation of these findings noted above in the histopathological and gross necropsy pathology, which lends distinct value to this fact.

Dandy^{23, 24, 25} has made an outstanding contribution in his work covering the introduction of air into the ventricles and subarachnoid spaces. In various types of the convulsive state a surprisingly large number of so-called "essential" epileptics were found to show an increase above the normal in the subarachnoid spaces over the frontal lobes and in the frontoparietal area. Dilatation of the ventricles was noted by this method by Dandy,^{21, 22, 24} Bingel,^{3, 9} Waggoner,¹¹⁸ Wartenberg,¹²⁰ Foerster,⁴⁵ Carpenter,¹⁴ Friedman, Snow and Kasanin,⁶⁹ and many others.

In my own experience covering 59 cases of encephalography, there has been noted a characteristic picture obtained by roentgenogram in those patients showing convulsive seizures. When stereoscopic films are taken following the Pendergrass method (Pancoast and Fay⁶⁰), the brain is seen in its normal relationship, and the ventricles and fluid spaces can be traced in detail. There is no doubt about the gross changes present in many of the so-called symptomatic epileptics following trauma, inflammation, tumor or degenera-

tion, and in those cases where the diagnosis has been "essential," or "idiopathic" epilepsy, the attacks having been present over a period of years, a definite change can be demonstrated in the fluid pathways by this method. (Figs. 1, 2, 3, 4, 5 and 6.)

Air (in place of cerebrospinal fluid) is seen in greater amounts especially over the frontal and parietal areas; the convolutions appear small, the sulci deep, the distance between the brain surface and the skull (dura) is distinct and may approach one centimeter in some cases. (Figs. 2 and 4.) The frontal pole is shrunken and much air is seen between the brain and frontal bone shadow. Deep pockets of air in various locations are frequently noted. (Fig. 2A.) A fairly large collection of air is usually present around the Pacchionian bodies, especially the middle pair, situated at the vertex and directly over the upper motor area. The dilatation of the lateral ventricles appears to depend somewhat on the duration of the symptoms, and shows more definite enlargement if the attacks began in early life or have persisted for some time. Obliteration of the normal pathways is sometimes seen (Figs. 3 and 5).

It is striking that rarely do we see either in the normal or diseased brain, fluid spaces over the occipital or inferior temporal regions (Fig. 1A). The main channels of surface circulation pass up the midline between the hemispheres; or along the Sylvian Fissure to the Rolandic area, or over the frontal lobes to the vertex. This is important to note because it confines for the most part, the fluid activities to the cortical zones under consideration (Fig. 7). Of interest are the findings of Frazier and Ingham⁴ that convulsive seizures occurred more frequently in gunshot wounds of the parietal lobes than in other areas of the brain.

SUMMARY AND INTERPRETATION OF PATHOLOGICAL EVIDENCE.

The histopathological findings of a cortical film of gliosis and thickening of the pia-arachnoid (with confirmation of this fact from the gross necropsy as well as vital pathology, in a constantly large percentage of cases), as well as subarachnoid collections of fluid, edema and increase in size of the cerebrospinal fluid pathways noted by so many observers (even Hippocrates), may well prompt us to ask the question: What factors associated with spinal fluid circulation might give rise to these conditions?

That brain atrophy exists in focal or more or less widely distributed areas in these cases is well established. However, the space compensation view of Dandy²⁷ implies a passive reaction to a process which has as yet no explanation. (The loss of brain volume by atrophy is replaced by cerebrospinal fluid to an equal degree, thus compensating for the total fixed intracranial bulk.)

The possibility that a chronic form of cerebrospinal fluid pressure due to excessive accumulation of fluid over the cortex (external hydrocephalus), finally by back-pressure along the subarachnoid spaces and pathways may eventually produce pressure to an equal degree upon the walls of the ventricles. This continued form of pressure acting upon the surfaces from without and within may account for the atrophy of the brain noted in this condition.

Weed and Hughson²⁸ have shown that the cranium and spinal canal may be considered a "closed box" after the age when the sutures have united. This closed spinal fluid system according to the Monro-Kellie doctrine must follow the laws of hydrodynamics, as long as the pathways remain open and communicating, thus, "pressure exerted at any point within a closed fluid system is equally distributed to all points throughout that system," would seem to apply. Our *spinal* fluid readings for *intracranial* pressure are based upon this fact.

It therefore seems probable that the soft tissues of the brain, caught between periodic and long standing attacks of such pressure might undergo atrophy of this type, either due to the direct influence of the pressure, or the secondary effects of this pressure upon the small capillaries, whose resistance to the slight compressing force would be less than that of the larger vessels. The "atrophy" or "failure to develop" in the frontomotor areas of the brains of the feeble-minded epileptics, is well recognized in contradistinction to the development of the occipito-parieto-temporal regions, and here again as has been stated, the areas concerned with the cerebrospinal fluid pathways have suffered most. Patterson and Levi²⁹ have shown an average pressure of 13.9 mm. hg. in a series of 50 epileptics (8 mm. hg. normal). My own observations give an average of 11.2 mm. hg.

We must therefore, turn for our answer to the question as to the probable rôle of cerebrospinal fluid in this process, to a consideration of the cerebrospinal mechanism, its circulation and some of its known properties.

CEREBROSPINAL FLUID CONSIDERATIONS.

Weed^{122, 124, 125, 126, 127, 128, 129, 130} and his co-workers have opened up a field of research that has been rich in its results. Many facts have been added by a wide group of investigators following this work. The subject is too extensive to deal with adequately in this paper. The reader is referred to the recent volume on cerebrospinal fluid from the Association for Research in Nervous and Mental Diseases,⁹ and the work of such authors as Boyd,¹¹ Fremont-Smith,^{30, 32} and Dixon and Halliburton.³⁰

Weed,¹²² page 184, describes his method of demonstrating cerebrospinal fluid pathways after the injection of particles of matter, and the mechanism of absorption of spinal fluid, as follows: "These granules, representing the foreign solution, were found within the mesothelial cells covering the villi (subarachnoid) and the endothelial cells lining the venous sinuses, as well as within the lumen of the venous sinus, thus demonstrating the essential pathway of absorption. In no other place was there evidence of direct passage through a cell membrane, as in the villi. The mechanism of passage of this fluid seemed to be a process of filtration from a point of higher pressure (subarachnoid space) to a point of lower pressure (venous sinus) though factors of osmosis and diffusion were not excluded." The villi to which he refers are defined on page 180. "The arachnoid villi are normal structures; the great enlargement of these in adult life results in the formation of the well-known Pacchionian granulations."

In summing up the question of absorption of spinal fluid, Weed states, "Thus it seems fair to assume that the absorption of the cerebrospinal fluid is a twofold process, being chiefly a rapid drainage into the great dural sinuses, and in small part a slow indirect escape into the true lymphatic vessels."

Recently, Sepp¹⁰³ has denied any function to the Pacchionian bodies other than anchors which keep the brain in place and prevent one hemisphere from slipping over onto the opposite side. By swelling up they are supposed to act as mushroom anchors holding fast to the dura and bone. He believes absorption of fluid takes place through the brain network itself. Howe⁶³ also favors a more general absorption as did Dandy and Blackfan.^{21, 32}

However, the weight of evidence is in favor of Weed's work, that the major portion of absorption of spinal fluid under normal conditions is carried on by the subarachnoid villi (Pacchionian bodies) Fig. 8.

Fremont-Smith⁸⁰ has expressed the view (page 330, Fig. 2), "after passing through the Aqueduct of Sylvius, the fluid enters the subarachnoid space, from which it is re-absorbed into the dural sinus (venous blood). A close analogy may be found in the formation and absorption of the aqueous humor and also of the glomerular urine." (Citing work of Wearn and Richards)⁸¹ and concludes, "there is no good evidence for the *secretion* of cerebrospinal fluid; that the evidence, taken as a whole, is overwhelmingly in favor of dialysis, and that the laws which determine the simple membrane equilibrium existing between plasma and the cerebrospinal fluid, have a fundamental significance for the mechanism of fluid exchange in the organism."

If, as has been shown, the major portion of cerebrospinal fluid depends upon the arachnoid villi (Pacchionian granules in the adult) for its absorption, and the fluid itself tends to follow the laws of a dialysate through this arachnoid membrane, it is here that we should turn our attention and determine the pathological changes which may occur in the Pacchionian bodies, which delay or obstruct absorption of the cerebrospinal fluid to such an extent, that excessive amounts of subarachnoid fluid may accumulate, producing at first distention of the adjacent cortical pathways (external hydrocephalus) and later by back-pressure exert itself on the walls of the ventricles in longstanding cases, producing moderate dilatation (internal hydrocephalus) with possible atrophy of the brain tissue caught between these two collections of fluid. See Figs. 9 and 10.

THE PATHOLOGY OF THE PACCHIONIAN GRANULES (SUBARACHNOID VILLI).

With the idea of determining exactly what changes occur in the Pacchionian bodies in the normal, as well as under pathological conditions, these neuropathological studies were undertaken by Dr. N. W. Winkelman at my suggestion. During the past year a number of brains of normal as well as arteriosclerotic and senile patients were studied, 150 in all. Brains from chronic epileptics,

acute inflammatory, traumatic and eclamptic patients were carefully prepared, and the histopathology noted. All the material which could be obtained of patients suffering from any form of the convulsive state has been added. A definite and characteristic pathology in these small and so far neglected structures has been thus determined.

It is rather striking that since the monograph dealing with the Pacchionian granules by Key and Retzius⁹⁹ in 1876, practically no attempt has been made to study systematically the effects of various diseases on these structures, or to correlate the function of the Pacchionian bodies with cerebrospinal fluid disturbance which they may directly influence.

Here again, Weed¹⁰⁴ has made most valuable observations, and has contributed largely to the knowledge that we now have concerning these structures, especially as to their development, morphology and physiology.

Other contributions to the subject deal with gross tumor changes involving the Pacchionian bodies, Cushing and Weed,¹⁰ Schmidt⁹⁹ and others; or with specific changes noted under various experimental conditions; Ayer,⁴ Essick,³¹ Metchnikoff,⁸⁸ Schott¹⁰⁰ and Evans.⁸⁵

The results of Weed's¹⁰⁴ studies are summed up as follows:⁶⁶ "The arachnoid mesothelial cells are normally of a low flat type, but their morphology depends upon the particular physiological state of the cells at the time of examination. Under the stimulus of particulate matter, and in acute infections, the cells increase in size, become phagocytic and at times form free moving macrophages. Other changes in the growth of the arachnoid cells, lead to the almost invariable formation, in the older animals, of cell clusters slowly progressive overgrowths, at times undergoing calcification and less frequently seemingly related to the formation of endotheliomata. Hence the morphology of the cells of the arachnoid may be said to depend not only upon the location of cells (as on the membrane or in an intradural cell-column) and upon the physiological state of the cells (as under the stimulus of particulate matter and infections) but upon the age-condition of the animal (as in the arachnoid cell-cluster)."

These observations have found confirmation and application in Winkelman's pathological preparations. (Figs, 11, 12, 13, 14, 15,

16, 17 and 18.) He has demonstrated acute changes associated with infections or toxic processes; subacute and chronic manifestations have also been found. Arachnoid villi filled with debris from a former cerebral insult, or loaded with blood pigment following subarachnoid hemorrhage (the source either adjacent or at a distance); various stages of sclerosis and calcification. In some chronic cases of epilepsy, there has been a failure to develop these Pacchionian granules (Fig. 11) and a search for other subarachnoid villi has shown extremely few, small, and poorly developed cell clusters to take over the function in the absence of the normal major outlets for cerebrospinal fluid (Fig. 17). The detailed analysis of these findings will be the subject of a special paper in the near future.

SUMMARY.

It seems fair to assume on the presented evidence that we have a most important structure in the arachnoid villi, concerned with the escape of cerebrospinal fluid into the dural venous sinuses. That pathological processes involving this structure or its failure to develop properly to a point necessary to compensate for the demand put upon it, would probably definitely impair its function and rate of transmission of fluid, so that during periods when overloading of the general system with fluid occurred, more cerebrospinal fluid would be produced. (Weed and McKibben)^{126, 127} (relation of ingestions of hypotonic solutions to cerebrospinal pressure), than could be at the time compensated for, with consequent accumulation within the subarachnoid spaces, producing pressure and distention (viz. postalcoholic and eclamptic wet-brain).

If the disturbance or pathological involvement of the subarachnoid villi be such that compensation for the overload can be made, or soon reestablished during a period of no fluid intake (sleep) no ill effects would be expected. If, however, the process be such that time is required for readjustment of this mechanism (inflammation, infection, toxemia, acute alcoholism, or chronic inflammatory and reactive processes) then the symptoms of an external hydrocephalus would be expected, such as a fullness in the head, headache, vomiting, stupor, coma, respiratory and cardiac disturbance; in other words, the symptoms of intracranial pressure in

accordance with the degree, extent and permanency of the re-active process. All of these symptoms are familiar clinical sequelæ of various intracranial manifestations.

THE MECHANISM OF PRESSURE.

Intracranial pressure is a relative determination in cases of cerebral pathology. To compare cases of similar pressures is of little value, unless the mechanism producing that pressure is similar in each. For instance, at a given time a cortical cerebral glioma of one hemisphere may reach the same increased pressure that occurs in a cerebellar tumor blocking the fourth ventricle and the outlet of the aqueduct, yet the mechanism may be entirely different. The former by enlargement of the hemisphere and slow encroachment on the cortical fluid pathways with flattening of the convolutions, may by its bulk and the cutting down of channels accessible to the Pacchionian granules at the vertex, give rise to a delay in spinal fluid circulation and absorption, with gradually increasing pressure. In the latter case, by blocking of the aqueduct, spinal fluid is prevented from escaping from the ventricle and an internal hydrocephalus results, with progressive dilatation of the ventricles and compression of the cortical pathways secondarily to the forcing of the brain surface against the skull.

Another example is important. Trauma, inflammation or hemorrhage involving the entire group of Pacchionian bodies at the vertex, will cut off the possibility of escape of spinal fluid at its ultimate point of exit and give rise to an intense external hydrocephalus with pressures which I have noted as high as from 50 to 70 mm. hg. In these cases, there is marked distention of the subarachnoid spaces over the cortex, with large amounts of fluid seen at operation. All of the spinal fluid pathways within the skull are distended and there may be slight dilatation of the ventricles. In contradistinction to this is the case of internal hydrocephalus with high pressure in which due to the occlusion of the aqueduct, there is great dilatation of the ventricles, and little or no fluid evident over the cortex.

In my opinion, it is extremely important that consideration be given the location of the obstruction along the cerebrospinal fluid pathways, before an adequate understanding of the changes pro-

duced by pressure can be gained. Kraus⁷² has considered the pressure values in such a mechanism.

A diagrammatic projection of these pathways is given in Fig. 19. A small lesion situated at *A*, *B*, *C*, *D* would cause serious obstruction, whereas in other areas, a lesion of considerable size would be necessary to produce sufficient symptoms to cause intracranial pressure. A diffuse lesion affecting the zone *G* would affect the entire system from the point of absorption to the source by back-pressure, whereas, a lesion at *C* would produce primarily a dilatation of the ventricles. Frazier and Peet⁴⁸ produced experimentally such an internal hydrocephalus, as had Dandy and Blackfan³¹ just previously.

We may then expect to find such dilatations of the subarachnoid spaces over the cortex as have been noted in the encephalographic reports recorded, associated with slightly dilated ventricles, only when the final points of absorption of cerebrospinal fluid are impaired or inadequate, whereas, passive collections of fluid may occur after degenerative lesions, in the manner described by Dandy³⁷ in his space compensation theory noted above. Active distention of the fluid pathways and the ventricles is probably due to increased collections of subarachnoid fluid, and pressure, in the same manner that this mechanism occurs from gross obstructive lesions seen at operation.

It would seem probable that with the demonstration of pathological changes within the Pacchionian granules or their failure to normally develop, there would be sufficient impairment of cerebrospinal fluid absorption to produce delay, accumulation and back pressure and thus give rise to an *actual supracortical edema*.

FACTORS AFFECTING PACCHIONIAN BODY FUNCTION.

As the Pacchionian bodies for the most part are the portals through which the cerebrospinal fluid escapes, and are susceptible to pathological changes similar to other structures in the body, they may be compared with some degree of similarity to the glomeruli of the kidney. The functioning of these bodies may be affected by the same general systemic conditions that apply to the kidney. Acute infection, toxemias and inflammations may interrupt their function (Figs. 11 and 16). Subacute and chronic degenerative

changes may occur gradually with sclerosis and calcification and probably impairment of function.

Thus, compensation for caring for the elimination of cerebrospinal fluid depends upon whether some, or all of these arachnoid villi are involved in the process, and the degree of involvement from the standpoint of a normal threshold for the demand placed upon them. When function is demanded above their filtering capacity, subarachnoid fluid accumulation will occur.

There is one factor unique to this system which may play a large rôle in its early disturbance and impairment.

The work of Essick²⁴ and Weed²⁵ shows that in the presence of particulate matter, and especially red blood cells there is a definite reaction produced by the lining mesothelial cells of the subarachnoid space, so that they became swollen, rhomboid, instead of flattened, and phagocytic. Red blood cells floating free in the subarachnoid fluid spaces, apparently gravitate to the vertex about the Pacchionian bodies, even though the source of hemorrhage be at a distance. Here they may be seen grossly, in a recent case of hemorrhage at necropsy, filling the sulci and covering the vertex with a thin film. (Figs. 12 and 16.)

As our pathological sections have shown their presence within the subarachnoid villi themselves, as well as traces of their pigment, there arises the question as to whether numbers of these cells, blocking the filters with the subsequent cell reaction to their presence, is not the actual mechanism of the acute pressure symptoms seem so frequently following intracranial injuries, or post-operatively where hemorrhage has occurred into the subarachnoid space, after a distant injury or exploration which does not involve the Pacchionian bodies directly.

The reaction to hemorrhage and the abnormal presence of red blood cells in the tissues throughout the body, is followed by organization with fibrous tissue formation, and later, sclerosis with contracture and scar formation.

The sclerosis noted within the subarachnoid villi under pathological conditions may well be the result of this factor, a subarachnoid hemorrhage which has occurred in early life or following cerebral injury. (Fig. 18.)

The milky characteristic of the arachnoid noted in the chronic, as well as the posttraumatic convulsive states, strongly suggests

this in appearance, and the reactive gliosis found by histopathological studies, indicates a reaction of the surface cells of the arachnoid, to some irritating agent of sufficient remoteness, to permit this final change to occur.

That such changes in the subarachnoid space can be produced experimentally in animals by injection of whole blood, or washed cells into the cisterna magna has been recently demonstrated by Bagley.⁷

CONSIDERATION OF BIRTH HEMORRHAGE.

The mechanism of labor itself presents the first possibility of cerebral trauma in the new born. With the moulding of the head and consequently the brain, associated in many cases by excessive pressure, subarachnoid hemorrhage occurs frequently in babies who show no symptoms of its presence at the time. Sharpe and MacLaire²⁰⁸ found that its presence by lumbar puncture, was demonstrated a few hours after labor, in a series of 500 cases in from 6 per cent to 13 per cent (Figs. 3 and 4).

Sharpe holds the view that this unrecognized hemorrhage at birth may be responsible for the occurrence of epilepsy in later life in the so-called "idiopathic" epilepsies. The progress of these infants is being watched for the development of symptoms as they mature. The growing importance of the question of cerebral hemorrhage in the new-born is indicated by several recent papers on this subject by Ehrenfest,²⁰ Crothers²¹ and Schroeder.²⁰²

THE INCIDENCE OF THE CONVULSIVE STATE IN RELATION TO THE DEVELOPMENT OF THE SUBARACHNOID VILLI.

Gowers,²² in a series of 1450 cases, noted that the onset of attacks occurred in 30 per cent before the age of 10 years, and in 75 per cent before the age of 20. (See Table 2.)

The majority of the remaining cases occurring in later life could be traced to some focal cause. Osler²³ states, "it is well to be suspicious of 'epilepsy' beginning in adult life, for in the majority of such cases the convulsions are due to a local lesion."

With the knowledge such as we possess, it is the opinion at the present time, that the Pacchionian bodies are not present at birth; but the subarachnoid villi develop into these Pacchionian bodies later

(Weed), and find their normal enlargement in adult life usually about the twentieth year.

It is thought that they make their appearance about the tenth year of life, and reach their adult state about the twentieth.

Here then we may consider what possible relationship exists between the incidence of onset in the convulsive state, and a developing structure of such importance to cerebrospinal fluid balance and circulation. Fig. 20 shows diagrammatically these factors and the influences that may play a part in the disturbance or failure to develop in this structure.

The glandular factors which control growth and development of the brain, and these structures must play a certain part. The secondary effects of skull formation and this effect upon brain and meningeal development must be considered. The influence of traumatic, inflammatory, toxic or tumor formations occurring in this developmental period involving these structures, would alter or disturb the function of the Pacchionian bodies, so that proper compensation for excessive intermittent demands placed upon it could not be met.

The disappearance of attacks in some cases occurring in early life (adolescent period) may be ascribed to further development of these structures with later compensation.

It is my opinion that in the many possible degrees of involvement of these arachnoid structures by pathological processes, may lie the reason for the great variability in frequency of attacks, period of onset and types of cases presenting the major form of the convulsive state. The basis for this opinion will be discussed later.

As these Pacchionian bodies are multiple (usually three pairs) the threshold of compensation would vary depending upon whether one or more of the system was involved in the process, or whether the function of all were slightly, moderately or seriously disturbed. Thus compensation by the remaining intact cells might be great or very slight and the latitude for fluid intake in the individual, without producing symptoms, would vary accordingly.

With the advancing years of the patient's life following the advent of the pathological process, chronic changes, fibrosis, sclerosis or imperfect development would become fixed and the failure of this structure to meet the increasing demands made by

growth of the brain and the consequent increase in spinal fluid volume and function there would occur a point or age at which the threshold for compensation was lowered so that the "outlet" for spinal fluid could not filter rapidly enough the amount of fluid produced and presented to it. This would result in damming back of fluid throughout the surrounding cortical subarachnoid spaces and distention of these pathways associated with a supracortical edema.

Proof is lacking on many important phases of this question. What has seemed a reasonable inference at the present will in all probability be modified or abandoned as more definite knowledge concerning this mechanism becomes available. With the information now at hand it can, in my opinion, offer at least a working hypothesis.

EXPERIMENTAL RESULTS OF EXCESSIVE FLUID INTAKE WATER INTOXICATION.

Rowntree⁷⁷ introduced water by stomach tube into dogs in large quantities (50 c. c. per kilo of body weight) every half hour. Within four to eight hours there occurred in these animals nausea, vomiting, salivation, convulsions (generalized and of cortical type), stupor and coma. This procedure was associated with a rise in intracranial pressure, and a distinct edema of the brain and vessels at necropsy. Weed and McKibben¹²⁰ previously had demonstrated marked alteration of brain bulk in animals, in which from 35 to 100 c. c. of distilled water were introduced intravenously. Marked swelling of the brain was demonstrated within from 36 to 81 minutes. This swelling obliterated the convolutional contours and produced *characteristic histological changes*. When the brain was opened by a decompression, the rapid swelling, following the introduction of sterile water intravenously, produced a cerebral hernia. These brains when examined immediately after the procedure (after careful fixation) also showed marked swelling, but the histological picture was unchanged showing that in the animals with decompression, in the presence of an outlet for the increase in brain bulk (cerebral hernia), *no change* in the cortical cells and structures resulted. Weed and Wegeforth¹²⁰ record (page 323, cat 22) while irrigating the subarachnoid space with 0.7 per cent sodium chlorid

solution, after two hours and ten minutes, "Animal having marked spasms and prolonged convulsions associated with beating movements of hind legs, is furiously insane and is biting self." Paralysis of the hind legs was present for four days. At the end of 10 days the animal had made a perfect recovery.

Kubie^{73, 74} recently has found by introducing large quantities of fluid by stomach tube, that convulsions occurred and has demonstrated marked changes in the brain and cord bulk in those animals where no relief of pressure was undertaken. If, however, a puncture of the subarachnoid space was made on the animal during the period of fluid administration, and continuous free drainage of spinal fluid permitted, no convulsive seizures resulted and there was no alteration in brain bulk. Solomon¹⁰⁶ has demonstrated the effects of injection and withdrawal of fluid in the subarachnoid space.

These are important experimental observations which have a direct bearing on the problem of the convulsive state.

Similar observations from a slightly different angle have been presented by Elsberg and Pike.³³ Intracranial pressure was increased in animals by the introduction of vaseline between the dura and the skull, in a quantity large enough to give a distinct mass. The convulsive susceptibility of the animal to smaller doses of absinthe than was required for the normal, resulted. Likewise, after introducing distilled water intravenously, a convulsion was produced more easily by small doses of the drug. If, however, intracranial pressure was reduced by intravenous hypertonic solutions of 5 per cent sodium chloride, or 25 per cent glucose, a much larger quantity of the drug was required to bring forth a seizure.

In cats with increased pressure, the total convulsant dose was about one-half of that for normal animals. In cats with lowered pressure, the average convulsant dose was twice as large as in normal animals.

These authors state in passing, "it may be that benefit from starvation in the treatment of some cases of epilepsy, is due to some extent to decrease in intracranial pressure consequent upon the diminution in fluid intake."

Recently, in a patient under treatment for neurasthenia on the service of Dr. D. J. McCarthy, fluid was given in large quantities, including a glass of milk every hour throughout the day. Generalized convulsions occurred for the first time in the patient's

history at the end of the second week, and were relieved by dehydration. Later, a second series of forced fluid feedings was followed by a similar result. (See also Fig. 21.)

SUMMARY.

It seems fair to assume that increased amounts of cerebral or subarachnoid fluid play a most important part in the predisposition to a convulsive attack, and throughout the convulsive state this common factor is involved to various degrees in some form, in the majority of cases.

DIRECT OPERATIVE OBSERVATIONS.

Hippocrates noted that the brains of epileptics were unusually moist. Alexander³ was so impressed with this fact that he devised an operation for release of this fluid, with drainage of the subarachnoid space, reporting 20 cases with improvement. Foster Kennedy⁴ describes the appearance of the brain during a convulsion in which sudden whitening followed by a tremendous venous engorgement, with protrusion of the brain beyond the level of the operative defect, was evident. Citing three cases of epileptic brains seen at operation Mixter⁵ noted, "there was some underlying cause for the collection of fluid beneath the arachnoid, but we have not information as to the nature of the fluid or the cause. It may be that cerebrospinal fluid has collected beneath the arachnoid, owing to some fault in absorption of this fluid—the arachnoid was elevated and the space between the arachnoid and the cortex filled with clear fluid."

Foerster⁶ has noted the cortex of patients having convulsive seizures on many occasions (over 100) and describes the blanching followed by intense congestion. The presence of increased amounts of subarachnoid fluid in these cases has been a common experience.

My own experience, when first viewing the cortex of an epileptic during a convulsive attack, was momentarily unpleasant. After reflecting the dura over the motor area, the milky, translucent arachnoid distended with fluid, gave evidence of the type of case with which I was dealing. There was no focal lesion, only a generalized "arachnoiditis." A tonic movement on the part of the patient was associated with an intense pallor of the cortex. A few

moments later, a fan-like suffusion of intense reddish congestion spread rapidly over the exposed area, and the first thought was that I had produced a subarachnoid hemorrhage, so intense was the congestion. The anesthetist at that time reported the patient was having a convulsion, and clonic movements became generalized. These clonic movements began coincident with the intense congestion and became quite violent. Incision of the arachnoid was made during this phase, and about an ounce of clear fluid escaped under pressure. The attack immediately subsided.

I have had occasion to explore or trephine seven cases during a period of status epilepticus, and found greatly distended subarachnoid spaces, the opening of which yielded from one to three ounces of fluid under pressure, and in all there was immediate cessation of the attack coincident with the first release of fluid.

In four other cases showing focal twitchings, and in one associated with motor aphasia, dull, confused or stuporous intervals between prolonged slight attacks, I have found *extra-arachnoid* fluid, which when drained, resulted in a prompt recovery. In one case (E. G. age 17) in this group, diagnosed "idiopathic" epilepsy, these symptoms came on suddenly and lasted 11 weeks, so that encephalitis was considered a possible complication. During this time she was a bed patient and great difficulty was experienced in feeding and properly caring for her during the time of observation. Following the exploratory trephine in which only drainage of this *extra-arachnoid* fluid was made through a small opening, she was out of bed on the sixth day and returned home on the tenth day following operation. One month later, she returned in the same state as previously, with 11 to 17 convulsions a day, bilateral at times, but chiefly on the right side, in the face and arm. Motor and sensory aphasia were present. Strict fluid limitation and dehydration reduced the attacks to one in a day, or one every second or third day. The attacks became focal to the right side of the face only, and during the twitchings there was difficulty in speech, but not loss of consciousness. An encephalogram showed a collection of extra-arachnoid fluid over the left Sylvian Rolandic area, and a formal exploration was done. (Fig. 6.) Upon opening the dura, about two ounces of clear fluid was found over the arachnoid; the sulci and arachnoid, about the Pacchionian bodies showed the milky characteristics of the epileptic. The subarachnoid space was care-

fully opened along several of the densest portions of the "arachnoiditis," and a small decompression with an opening in the dura was made to permit fluid to escape out under the scalp. For five days following the operation the edema of the scalp extended to the forehead and face, so that the eyes were completely closed and the cheeks swollen. The fluid had to be drained on one occasion through the wound incision, about five ounces in all. There was slow absorption of the edema; the patient made a complete recovery, and on strict limitation of fluids returned home in the third week, and has remained free from attacks since the second operation.

Operation at best is only a palliative measure, unless there can be shown by clinical examination, and an encephalogram, evidence of a focal lesion. In my opinion, it has no place in the treatment of the epileptic unless other measures fail, and the patient's life is endangered by the prolonged presence of status.

The above case is cited for three reasons: (a) The presence of free extra-arachnoid fluid, as well as accumulation of subarachnoid fluid, and the characteristic milky appearance of the arachnoid. (b) The prompt recovery from status and stupor, by release of this fluid from a simple trephine opening and opening in the dura. (c) The recurrence of symptoms with the recurrence of fluid; the definite operative drainage of this collection in a more permanent way to allow it to collect under the scalp, with resultant edema of the face, and final recovery.

The underlying cause for the fluid accumulation is still present unquestionably, and the operative procedure has in no way remedied this factor. I have no doubt that if the patient were permitted free intake of fluids, a recurrence would promptly set in. I believe with the slight added compensation for escape of this fluid through the substituted outlet into the subcutaneous tissues, that with the present limitation to 12 ounces of total liquid per day, the spinal fluid system is able to compensate normally without overloading the capacity of the filters to cause accumulation.

The final reason for discussing in full, this case, is because of the necessity of differentiating the former group of status cases with increased amounts of fluids *beneath* the outer layer of the arachnoid, and those which like the above case have free fluid *over* the arachnoid (wet-brain) as well as in the normal spaces

beneath. The treatment of these two types is quite different. Normally, as is well known, fluid is never found over the arachnoid, between it and the dura. The subarachnoid fluid is continuous with the spinal fluid and can be drained by lumbar puncture providing no obstruction to the pathways intervene. Extra-arachnoid fluid cannot be drained by spinal puncture nor does it find an opportunity for direct absorption. It acts in a sense like a tumor mass or subdural hemorrhage in the production of pressure and at times focal or generalized cortical symptoms. It differs from a tumor or clot only in its fluid properties which tend to allow its spread throughout the subdural space and if not compensated for by the withdrawal of spinal fluid and reduction of total intracranial bulk, serious symptoms of pressure develop (viz., post traumatic and alcoholic wet brain). As this fluid is outside the spinal fluid system it does not respond to even intense dehydration. It is well known that drainage through decompression or trephine is necessary to remove it in acute conditions and because of its widespread distribution, often over both hemispheres. Da Costa,²⁰ recommends bilateral decompression with drainage.

In order to avoid operation such as was done in the first group of status cases mentioned, where it was noted that intense edema and fluid collection in the subarachnoid space gave prompt relief from the seizures by allowing this subarachnoid fluid to escape, lumbar puncture with withdrawal of fluid was found to accomplish the cessation of the attack. This measure accompanied by dehydration (magnesium sulphate by mouth or 50 per cent glucose by vein) and limitation of fluid intake brought about prompt relief. However, in the second type of case such as the one cited with extra-arachnoid fluid present, these measures failed because the fluid was not available for either spinal drainage or absorption. After verification by an encephalogram, operative removal is indicated.

It is important to bear this differentiation in mind as it occurs with a fair degree of frequency throughout the convulsive state as a whole and especially in the acute toxic, eclamptic, traumatic and alcoholic groups in which convulsions are an associated factor at times. These cases with extra-arachnoid fluid have not responded to dehydration and fluid limitation to the same extent as those which will be noted below.

SUMMARY.

From the clinical standpoint the frequency with which abnormal amounts of fluid distending the subarachnoid spaces has been observed associated throughout the various types of the convulsive state has naturally led to the question as to why this common factor is so constantly present, and I believe the explanation may lie in the pathology of the arachnoid villi, and their failure to properly function as already presented. This dysfunction we may consider as the *predisposing* factor, for Pacchionian pathology alone, (compensating) without the presence of subarachnoid edema, is not associated with attacks. Subarachnoid edema within certain limits (compensation of the Pacchionian granules or subarachnoid villi), and without the added insult of a precipitating factor, is not probably responsible for the convulsions.

The next question as to how this subarachnoid fluid (supra-cortical edema) could act as a predisposing factor to a convulsive attack, has had long consideration. Before presenting the theory as a possible answer to this question, several other recognized factors must be considered.

VASCULAR DISTURBANCES.

Foster Kennedy, Foerster, and others have noted the appearance of cerebral anemia followed by intense venous engorgement occurring in the exposed motor area of an epileptic. Hughlings Jackson¹⁶ noted pallor of the optic disc just prior to an attack, followed by engorgement of the retinal veins during the seizure. The production of "Kussmaul-Tenner"¹⁷ attacks resulting from cerebral anemia, has found many supporters. Astley Cooper,¹⁸ ligated the carotid arteries and made pressure on the vertebrae in rabbits, producing attacks. Others occluded the venous outlets to the skull in dogs, producing rapid deaths with a terminal convulsion.

The reader is referred to Ito's^{19, 20} work for the collection of experimental evidence up to 1899. The all comprehensive monograph by Lennox and Cobb²¹ just published, gives a careful analysis of the important observations which relate to the problem at the present time.

Forbes,^{46, 47} has improved and elaborated a window in the skull whereby direct observations of the vessels of the pia-arachnoid can be made and with the conjoined efforts of Wolff, has demonstrated the probable presence of a vasomotor mechanism within the vessels themselves, as well as showing they are responsive locally to changes in the physical and chemical characteristics of the blood. By microphotography, they were able to photograph through the glass window the actual change in size of the arterial and venous vessels, making possible accurate measurements. These authors found that in the presence of intravenous and intraperitoneal hypertonic solutions there was a definite fall in intracranial pressure with constriction of the cerebral arteries. In anemia produced by occlusion of the carotids they found contrary to what might be supposed, a rise of intracranial pressure associated with dilatation of the veins and arteries. During this period of dilatation and anoxemia, a transudation of the plasma fluid takes place from the vessels, Landis,⁷⁰ pointing out that in the presence of anoxemia fluid passes through the capillary walls at four times the normal rate. Syz,¹¹⁴ has shown increased permeability of brain tissue to acid fuchsin following trauma.

The clinical manifestations of circulatory disturbances are discussed in a recent contribution by Riesman and Fitz-Hugh,⁸⁶ citing twelve cases of *epilepsia tarda* (senile epilepsy) they believe, ". . . that the convulsions of *epilepsia tarda* are initiated, in part at least, by moments of deranged cerebral circulation, the pre-existing background for which we believe is usually demonstrable. That there is another factor, the unknown X of all the forms of epilepsy must be admitted."

We cannot escape the obvious clinical evidence noted in the onset of an attack, pallor, loss of consciousness and sweating, similar to syncope and showing distinct signs of circulatory disturbance. The reader is referred to the recent monograph, by Frisch⁸⁴ on the vegetative system of epileptics, where we find a close analysis of many contributing factors which may influence or regulate the circulatory mechanism and the statement, "thus we can almost certainly assume that fluctuations of blood pressure occur, as well as momentary and centrally induced disturbances of metabolism." Turner¹¹⁸ states a fall in blood pressure precedes an attack.

SUMMARY.

It seems reasonable to accept, therefore, a disturbance of circulatory function occurring just prior to an attack. This sudden vascular change may have its source of instability locally, or at a distance, due to a variety of factors. It may be considered as the *precipitating factor*. However, these same manifestations occur in many cases without convulsive seizures, and therefore must be considered in the light of a contributing factor. That cerebral anemia and anoxemia are insufficient in themselves to bring about a convulsive response is evident, else we would find this symptom associated with almost every case of death by natural causes.

If, however, we combine what I have termed the *predisposing factor* (supracortical edema) with the *precipitating factor* (circulatory disturbance, cerebral anemia and anoxemia), we may reasonably assume that certain conditions will result.

In the presence of a "closed box" mechanism (Weed and Hughson),¹²⁵ within which the structures lie, there is a certain range of compensation between the three factors which make up its contents. Brain and meninges, cerebrospinal fluid, and vessel walls containing blood.

Normal intracranial pressure depends upon the proper interrelation in bulk between these three components. Therefore, increase in amount of cerebrospinal fluid may be compensated for within certain limits by either a reduction of blood volume or that of the brain (atrophy) without a rise of intracranial pressure, depending entirely of course, upon the fact that sufficient time is allowed to permit the shift within the limits of compensation without producing acute signs of pressure in this change of proportion.

Likewise in actual increase of brain bulk (tumors especially glioma) there may be a considerable period of time when spinal fluid ratio will decrease as long as the pathways are open and the subarachnoid villi able to compensate, without an increase in intracranial pressure. This is the stage before pressure symptoms occur and has been frequently demonstrated where focal lesions have indicated the presence of an organic process which has led to an encephalogram, ventriculogram or ventricular estimation, to determine the character of the lesion because of the *lack* of pres-

sure symptoms. The volume of spinal fluid is found decreased and the X-ray films of the air injected, shows a filling defect of the normal fluid cavities. This is the explanation given where a tumor mass has undoubtedly been present for months or years before the onset of the cardinal symptoms of pressure.

Change in vascular volume can also be compensated for within certain limits at the expense of the cerebrospinal fluid bulk as can be easily shown by the forcing out of spinal fluid when jugular pressure is applied in the Queckenstedt Test. This test, however, because of its abrupt application, causes a rise in intracranial pressure sometimes to over 40 mm. hg. and even slight constriction of the jugular outflow may show a fluctuation of pressure as demonstrated by Ayer,^{6, 7} and elaborated by Stookey.¹² It is conceivable that within small limits vascular volume may increase gradually or diminish at the expense of the cerebrospinal fluid bulk, within physiological limits without a rise in pressure. Coughing, straining, pulse and respiration all register an appreciable change in intracranial pressure through blood volume changes.

With the physiologic limits of these interrelated and compensating structures in mind, it is possible to construct several combinations of these factors in their response to acute or chronic changes.

Supposing we assume for the purpose of analysis the conceivable situation of gradual increase in cerebrospinal fluid volume just to the limit of compensation by the other structures (normal intracranial pressure) so that the ratio has been shifted to the side of spinal fluid bulk at the compensating expense of brain and vascular volume. This should give a filling of the fluid pathways and spaces to their maximum capacity without distention or increased pressure. If cerebrospinal fluid volume is further increased a slight pressure will ensue with tension on the subarachnoid spaces and walls. In the presence of constrictions or adhesions, thickening of the arachnoid, these layers will not have the same resiliency or stretch to compensate the tension of an overfilled space. The trabeculae (Fig. 22) are attached to each layer of the pia-arachnoid, the outer layer is free beneath the dura, the lower layer attached firmly to the surface of the cortex by small fibrils (Weed).

The increased amount of cerebrospinal fluid lies between these layers within the spaces traversed by the trabeculae fully dis-

tending them but producing little or no rise in general intracranial pressure (observations at operation and by encephalogram). The undulating "give" of the arachnoid spaces to the cerebral arterial pulsations is lost as I have observed at operation. With each beat there is a quick tense swelling of the outer layer with retraction. The mechanism may be likened to the slight stretching of a rubber band placed between the fingers. Traction of these attachments directly on the cortical surface with each pulse beat may be sufficient to cause a low grade irritation, and perhaps the gliosis of the outermost cortical layers noted pathologically by Chaslin, Bleuler and Alzheimer, may be secondary to this mechanism.

With these diffuse, bilateral cortical stimuli though slight, they may by summation, act in accordance to the physiological laws of *sub minimal stimuli* and thus condition or irritate the cortex to a point of expectant discharge.

Now introduce the vascular factor. A sudden change of circulation (emotion, fright, coitus, exertion, reaction to central sympathetic or peripheral stimuli) and a vascular capillary system already diminished to its point of compensation for the increase in ratio of spinal fluid volume, gives rise to a momentary cortical anemia with loss of consciousness.

There then follows intense engorgement of the veins with a sharp rise in intracranial pressure associated with anoxemia and rapid transudation of fluid from the vessels into the already overfilled tissue and subarachnoid spaces. The arterial pulsations continue, traction and distention of the subarachnoid space and actual edema increases. The tonic phase which has already commenced is thought by Ziehn,¹³⁸ to be subcortical in origin. It has been likened by some to decerebrate rigidity, with the temporary blotting out of cortical control and function. Lind,⁸⁹ states the cortex has five times the blood supply of the subcortical areas, and hence suffers most.

Jarlov⁸⁷ has shown that preceding an epileptic seizure, there occurs a measurable shift of the reaction of blood plasma in the direction of alkalinity. Lennox and Cobb⁷⁸ discuss this factor, pointing out that acute alkalosis is accompanied by edema. Here then seems to be more insult added to injury in the form of edema predisposing to an attack.

With the onset of the tonic phase of the attack, there appears cyanosis which further adds to the anoxemia present, but with the cessation of respiration, there is a rapid accumulation of carbon dioxide in the blood plasma and tissues, and this favors a shift in the pH. to the acid side. Lennox and Cobb state, "apnea, and muscular contractions would result in a great accumulation of lactic acid and carbon dioxide in the tissues, producing a condition of acidosis which would initiate a reversible reaction, leading to a better utilization of oxygen, a restoration of circulation and release of muscle spasm."

So re-establishment of cerebral circulation must occur or else the motor cells could not maintain their active explosive function as they do, throughout the clonic phase that follows. Spasmodic breathing here occurs and the cyanosis disappears.

The stupor which follows the attack is similar to what we see with increased intracranial pressure. The headache and vomiting which may follow suggest that this edema of the cortex remains for sometime. The fall in blood pressure, sweating, and later, passage of increased amounts of urine, probably favor elimination of fluid, aided by the acidosis and increased lactic acid content of the blood seen after an attack. (Osnato and Killian.²⁹) The period of inactivity and "sleep" following the attack probably favors a readjustment of the fluid balance.

The above represents an attempt to correlate the clinical aspects of the convulsive state, with the facts now at hand as I interpret them. At best it can only be considered a working hypothesis which requires corroboration from many aspects. Several of the unconfirmed points are now being tested in the laboratory and whether the final results will modify or confirm them remains for the future to disclose.

THE THEORY.

The subarachnoid villi play a most important part in absorption of cerebrospinal fluid. They are present at birth as small cell collections associated with the large venous sinuses. They reach their adult state about the twentieth year of life and become known as the Pacchionian bodies—usually three pair.

They are dependent upon the laws of development and growth similar to any other body tissue. They are probably prone to the same degree of variability as other anatomical structures. They may follow the same activating forces that determine brain growth but this we do not know. It is reasonable to suppose that they are open to the same degree of congenital malformation or abnormality that might be expected elsewhere. That hereditary deficiencies in this structure may explain their absence or failure to develop is conceivable. That inflammatory or toxic conditions in the mother during pregnancy may affect them is possible. That birth injury, hemorrhage or subsequent trauma, due to their situation at the vertex, open fontanel and movement of the cranial bones in the early months of life is probably the most common cause of their damage. Inflammation either direct or secondary to infection, toxemia, encephalitis, meningitis—septic or aseptic, trauma—direct or with adjacent or distant subarachnoid hemorrhage, tumor or eclampsia affect these structures and may so impair their function that they may at once, or as a chronic increased deficiency occurs, with advancing age and growth of the brain associated with increased demand, reach a point of failure to compensate, thus permitting the accumulation of excessive amounts of subarachnoid fluid over the cortex.

With sclerosis consequent to hemorrhage, inflammation or trauma, or impairment of the fluid spaces in the presence of a supracortical edema sufficient to stretch the thickened and adherent arachnoid attachments, there would be produced a form of subminimal stimulation that would be a predisposing, sensitizing generalized factor (at times focal in posttraumatic cases) variable depending upon fluid intake and overloading of the compensating threshold of the absorption mechanism (subarachnoid villi—Pacchionian granules).

That in the presence of a circulatory disturbance (cerebral anemia) there would be produced increased intracranial pressure with further transudation of fluid into the tissues (anoxemia) increased arachnoid distention and traction due to arterial pulsations, these form subminimal stimuli, the summation of which precipitate or predispose to the final discharge of motor cortical impulses through the final common pathway for such movements.

That with the control of spinal fluid production to a point within the threshold of compensation of the subarachnoid villi, or Pacchionian bodies, by limitation of fluid intake (dehydration) in the patient, this predisposing factor would be withdrawn and the

TABLE II.
ONSET OF SEIZURES.
(Gowers.)

Year of life	Number of cases
1.....	163
2.....	67
3.....	48
4.....	38
5.....	30
6.....	43
7.....	48
8.....	54
9.....	48
10.....	56
11.....	48
12.....	71
13.....	56
14.....	84
15.....	59
16.....	43
17.....	44
18.....	32
19.....	33
20.....	26
21.....	27
22.....	16
23.....	15
24.....	6
25.....	7
26.....	12
27.....	10
28.....	10
29.....	6
30.....	5

vicious cycle existing between the cerebrospinal fluid system as a predisposing agent and the vascular system as a precipitating factor, broken.

The variable factor as to age of onset (Table II), periodicity of attacks and variations of attacks may be the threshold for com-

pensation of the subarachnoid villi and their degree of involvement. Excessive and prolonged overloading of fluid even in the normal, may reach a temporary period of decompensation, and may be associated with an attack.

Cerebrospinal fluid pressure, volume and rate of absorption is capable of control by clinical means. The application of the principle of this theory is therefore possible throughout the convulsive state and results should be obtained if this theory is tenable in proportion as it is possible to regulate cerebrospinal fluid production to a point equal to or below the threshold for compensation of the absorptive mechanism.

CLINICAL APPLICATION.

After a wide experience in the control of intracranial pressure Fay,^{36, 37, 38, 39, 40} following trauma or in the presence of tumor or other causes, the results obtained justified the belief that the measures used in dehydration of an acute case of intracranial pressure by the control of cerebrospinal fluid production from a few days to a month or longer, might be extended over an even longer period of time and be applied to those cases of epileptics where increase in subarachnoid fluid was demonstrated by encephalogram.

In consequence, in June, 1927, cases were studied and selected for this analysis. It was necessary to obtain true coöperation by the patient in order to carry out this clinical study. It was impossible at first to apply the treatment to institutionalized patients because constant supervision was wanting and coöperation not obtainable. Hence the small group here presented is selective and does not represent the institutionalized patient with definite mental deficiency. However, the similarity in several of the cases to typical institutionalized patients is such as to warrant the assumption that similar results might be obtained even in a considerable proportion of the chronic institutional group.

As will be seen, the control of the patient while under dehydration must be as exact and all inclusive as is necessary in the treatment of the diabetic. Where absolute coöperation and reliance in the individual is lacking, constant supervision is necessary to accomplish any result and the method fails if there is even a slight deviation from the program outlined for each case.

TREATMENT.

The patients are first observed for a number of days to determine the quantity of liquids consumed normally in their routine life. Water, tea, coffee, milk, soup, fruit juices, soft drinks, ice cream, ices, etc., are carefully measured, charted and totalled each day. The total urinary output is also carefully collected and measured. During this period the usual diet is continued. The average water represented in the diet can be computed using the estimations of Soderstrom and DuBois,¹⁰¹ or from other reliable charts. The actual weight and supervision of quantity of the foods will give a fairly accurate knowledge of their water content and thus approximately total fluid consumed in this manner determined. The character, duration and frequency of the attacks are of course known.

An encephalogram is then done, or if previously obtained, the patient is given an initial start on dehydration by administering $1\frac{1}{2}$ ounces of magnesium sulphate crystals in water by mouth (adult dose). This dose is repeated every other morning for three consecutive doses. At the same time the patient is placed on a carefully measured liquid intake, 8 oz. (240 c. c.) to 20 oz. (600 c. c.) per 24 hours. The urine is collected and measured as usual. The variety of liquids given may be apportioned in any way that the patient desires as long as the total liquid intake does not exceed the 8 to 20 ozs. in 24 hours. In selecting the water intake level, one must be guided by the severity of the case and frequency of attacks. Later in the study, the intake may be increased or diminished as the patient's symptoms indicate and their true level of fluid tolerance determined.

This degree of fluid limitation is followed by some discomfort on the part of the patient for the first 10 days, but in all the cases where this initial period has been accomplished, they have maintained the restriction of fluids without difficulty and with no ill effects. In one case fluid intake of 8 oz. (240 c. c.) per day has been maintained now for a period of almost a year, the patient stating that he preferred the trouble and slight discomfort of this fluid limitation to his former attacks which have not returned during this period.

As thirst is inevitable during the first few days, it has been my custom to allow a small piece of fragmented grapefruit or orange to be taken at frequent intervals. This has assisted greatly in the early problem.

It is during this initial stage that most of the failures will occur. Where no coöperation can be obtained the patient will "take a little extra" (unmeasured)—"did not think that an ice cream soda counted," gargle frequently and not be able to "keep a little from slipping down," lie, steal, drink from a flower vase, lavatory or while washing their face, even when under supervision. Hence, the problem in the mental defective can only be tested where these factors can be continually controlled. They are similar in their dishonesty to the severe diabetic who is uncoöperative. *Unless absolute fluid regulation is maintained, little or no results can be expected.*

During the first few days of fluid limitation at this low level it is interesting to note the high output of urine in contrast to the intake (Figs. 21 and 23). The accumulation of body fluids in excess, from former free intake of fluids, persists for about six days as is also shown in Fig. 24. Following this, there may be a drop in volume of urine passed to below the intake level; again a sharp rise above the intake point with fluctuations for several weeks. It will be found after several weeks, the diet content remaining constant, that a level is reached which so closely corresponds between liquid intake and urinary output that it may not vary more than 20 c. c. This has been a surprising fact seen throughout the group and has come to be accepted, though the explanation for this final and equal adjustment by the organism is not known. (Fig. 25.)

After the level of intake and output has closely corresponded on this restricted basis, the grand mal seizures have disappeared, and have remained absent until an indiscretion of intake has changed the fluid balance. This we have demonstrated on several cases and is clearly shown in Fig. 21, in a case having three to five grand mal attacks per week, which had been present for three years and had shown no petit mal during that time, though they had been present previously. After the fifth day of fluid limitation a series of petit mal attacks occurred over a period of five days, but no

grand mal seizures. Fluids were then given to the former accustomed intake and within 12 hours, prolonged generalized convulsions began and were present throughout the following six days. Dehydration was again started and the attacks again resumed the petit mal character without loss of consciousness, becoming less frequent and entirely disappeared at the end of the sixth week. One attack of grand mal occurred in the second week and one two months later during the holidays. He continued attack free for seven months when he had two attacks during an illness with influenza which required (his medical adviser thought) an increase in his fluid intake.

It has not been difficult in the small number of cases so far studied under dehydration, to change greatly the character of the attacks and to remove the generalized seizures and unconscious phase, but in cases of slight seizures the petit mal attacks have persisted in spite of the most rigorous fluid limitation even to $6\frac{1}{2}$ ozs. (200 c. c.). The impression has been gained that the petit mal attack has so far remained unaffected. The question arises as to whether this may be in some way associated with the circulatory precipitating factor which may still be active. No evidence is at hand to offer the slightest explanation.

The diet is an important consideration in maintaining the fluid balance, as is illustrated in Fig. 25, in a case that has now gone 11 months free from grand mal attacks but is still having frequent petit mal seizures focal in character (twitching of right side of face, raising right arm, no loss of consciousness). It was found that the urinary output was constantly over the liquid intake level. The patient had been on a full diet, as have all the patients in this series, avoiding the fruits and vegetables with high water content. He was placed on a dry diet (baked potatoes and rice instead of boiled, dry cereal instead of cooked, toast in place of bread) and the intake and output levels at once became adjusted. With the dry diet he was permitted more fluids as the former total had maintained him attack free (grand mal) and his intake and output levels rose together and have remained almost constant.

At times there are unaccountable sudden rises in output as is also seen in Fig. 25, although a careful check failed to establish

any deviation from the liquid intake stipulated. The quantity or character of the diet was probably responsible. Another case showing this peculiarity, after careful search revealed that occasionally an enema was taken for constipation. These events coincided with the rise in urinary output.

The patients have been instructed not to add salt to their food. A salt free diet has not been administered but it seemed perhaps better to eliminate salt added to the usual food or salty foods so as to lessen thirst and perhaps lessen the tendency of sodium chloride to hold fluid in the tissues.

Weight is rapidly lost during the first few days of dehydration but general health factors have remained unchanged, and in some, a slight gradual increase of weight began in two to three months.

Acidosis from the continued limitation of fluid has not been sufficient to produce symptoms as the carbohydrate values of the foods have not been restricted.

Of the 17 cases studied so far, six failed of coöperation or discontinued treatment early. An illustration of one of these failures is given in Fig. 26. (K. D.) Attacks began in the first year of life and had persisted during the following 16 years. They would average 8 to 10 grand mal attacks per week with usually periods of unconsciousness lasting two days out of the week. Attacks were especially severe during the menses. The patient had been confined to bed at intervals so that pressure sores and contractures had resulted. She had always been under the care of a nurse in her home and although given every attention possible in training and education during the free intervals, her mentality was less than a six-year old excepting for the fact that she could read. The longest interval between seizures as far as the nurse and mother could recall was 10 days in the past 16 years. She had been under bromides, luminal and many forms of medication. She had been extensively studied by many able neurologists and "essential epilepsy" had been diagnosed.

She was started on dehydration and placed on 8 ozs. (240 c. c.) of liquids a day because of the severity of the attacks. She rapidly became brighter, able to be about in special shoes to correct her deformity and was attack free for six weeks—the longest interval in her history. She went out to the theatre and became active

enough to walk on the street. Masturbation had been present for years and with her new activity, she was unmanageable at home, desiring to find someone of the opposite sex, exposing herself in public, and having been greatly spoiled, her constant dissatisfaction with her restrictions led to great disturbances within the household. The family finally decided to permit her to return to her former state rather than chance a public scandal and allowed her to resume the former free intake of liquids. Two days later a series of violent convulsions occurred (more violent than any preceding her dehydration) and after one week the attacks had taken on their former characteristics with prolonged periods of stupor.

The problem presented is an interesting one as it will probably apply to the chronic institutionalized group of mental defectives, the freedom of attacks presenting behavior problems of even greater concern.

Two chronic institutionalized cases were loaned to me for study and supervision. The one patient after being attack free for three weeks, escaped from the hospital, joined her husband and left the city without further word as to her progress and must, therefore, be included among the failures. The other patient was attack free during her period of observation, but when returned to the institution, no adequate supervision of her liquid intake or output was made. She obtained liquid from other patients, and her seizures returned. The remaining three patients were unable to overcome their desire for fluid, and as they were not under supervision, dehydration was discontinued.

Five of the patients in this small series, who have continued attack free for a sufficient length of time to permit their consideration are presented. It is of course understood that the number of cases is too small, and the period of observation too short to consider the findings in anything but the light of a clinical experiment. The final conclusions and results obtained must await much further study to include the institutional groups, and the biochemical and physiological factors produced by dehydration. (Fig. 26.)

THE CONVULSIVE CENTERS.

Much discussion still exists as to the site of origin in the nervous system, for the initiation of a convulsive seizure. The cortex, pons,

medulla and cord have all been advanced as the probable point of involvement. Brown-Séquard,¹² Westphal,¹²² Schroeder Van der Kolk¹⁰² and others have favored the medulla; Nothnagel⁸⁸ championed the pons; Langendorff and Zander⁷⁷ showed the effect of vagus stimulation; Kocher,^{70, 71} Jackson,^{65, 66} Dandy,⁷⁸ Oppenheim,⁸⁰ Speransky,¹⁰⁸ and a host of others have established the intact cortex as the most important site. Foerster⁴³ pointing out that stimuli arising from the lower centers may initiate an attack. He has shown that the impulses spread from one hemisphere to the other, by tracts which cross as low as the pons. Spiller¹⁰⁶ has recently pointed out the difference between cortical and subcortical epilepsy. The subject is thoroughly discussed by Lennox and Cobb⁷⁶ and need not concern us here as to the tracts concerned, or the neurological physiology of the final common pathway for expression. The recognition of a widespread predisposing factor is implied, and the part that edema may play and its effect on these structures must yet be determined.

DISCUSSION.

It is needless to take up in this paper the physiological and biochemical factors which have been determined in the past by so many workers. The just published monograph by Lennox and Cobb is so comprehensive and the analysis of the problem by these investigators so exhaustive that its acceptance as the outstanding contribution to the subject is immediate. The reader is referred to this important contribution, the experimental conclusions of which greatly strengthen the clinical application of dehydration which has been presented above.

Lennox and Cobb state (p. 258), "The evidence so far gathered indicates that in certain epileptics subject to frequent seizures, these may be precipitated by oxygen lack and by alkalosis, however induced, whereas seizures may be prevented by an increased oxygen tension in the tissues and by acidosis, however induced. Through oxygenation of tissue and acid-base relations each plays an individual rôle, they complement each other; *e. g.*, acidosis lowers the oxygen dissociation curve and allows greater utilization of oxygen by the tissues; anoxemia results in relative alkalosis. Linked with these two factors is that of the water balance of tissues. Acute acidosis is associated with dehydration, because of

the need for increased excretion of base, whereas acute alkalosis is accompanied by edema. Presumably increased permeability of tissues is a corollary of edema." Their table containing certain physiological changes which may effect seizures is here reproduced.

TENTATIVE LIST OF PHYSIOLOGICAL CHANGES IN THE BRAIN
WHICH MAY EFFECT SEIZURES.

(Lennox and Cobb, p. 259.)

Conditions which may tend to		
	Prevent seizures	Precipitate seizures
Oxygen	Rich supply.	Poor supply.
Acid base equilibrium...	Acidosis by means of fasting, fat diet.	Alkalosis by means of ingestion of alkali.
	Ingestion of acids or acid forming salts.	
	Breathing high CO ₂ .	Hyperpnea — "blowing off" CO ₂ .
Chemical constituents ...	Low Chloride (?).	High Chloride (?).
	High Calcium (tetany).	Low Calcium (tetany).
Water balance	Dehydration.	Edema.
Permeability of tissues...	Decreased.	Increased.
Intracranial pressure ...	Decreased.	Increased.
Intracranial circulation ..	Impaired.	Unimpaired.

It is striking that this evidence, coming as it does from the experimental side of the problem should contain so many factors relating to the problem of fluid properties and dehydration which have had the present clinical consideration in this series during the past year and in a certain traumatic group over the last five years. It offers the much needed data to explain perhaps the reason for the benefit obtained under dehydration. An analysis of the foregoing table in terms of fluid mobilization or accumulation in the conditions which tend to precipitate seizures is interesting. (a) Poor oxygen supply favors increased permeability of tissues to fluids. (b) Alkalosis may be accompanied by edema. (c) High chlorides may favor the retention of fluids in the tissues (?). (d) Edema itself may favor the precipitation of attacks. (e) Increased intracranial pressure results directly or indirectly from the disturbance of the cerebrospinal fluid circulation by involvement of its absorption mechanism, pathways, or displacement of intracranial bulk so as to interfere with its normal ratio and volume.

Fluid enters the problem from so many contributing factors as to seem in my opinion a fundamental factor or almost a common denominator. We do not know as yet the physiological laws regulating this factor or the exact effect on the nerve cells or local metabolism.

We may feel some assurance however that profound limitation of liquids ingested by the patient may so disturb the water balance and cerebrospinal fluid production as to remove some of the conditions which tend to precipitate seizures. This has probably been the reason for the relief from attacks noted in these patients while under dehydration.

In their general conclusions Lennox and Cobb point out (p. 260) "As we have emphasized above, there is no constant anatomical lesion in epilepsy, and only a minority of patients with extensive cerebral pathology have fits. We are forced then to postulate some unknown constitutional element. This abnormal "convulsive capacity" is presumably present in some degree in each person with epilepsy. To that degree each person, whether hysterical, eclamptic, or suffering from cerebral trauma, tumor or gliosis is an "essential" epileptic. The relative importance of this convulsive tendency must vary enormously in different persons and in the same person from time to time."

If we may be permitted to consider the postulation of the "unknown constitutional element" in the light of the subarachnoid villi and the Pacchionian bodies including delays in cerebrospinal fluid reaching the absorbing mechanism through disturbances of its normal cortical pathways then we might expect this "element" as representing under various diseased conditions the "convulsive capacity" in each person with epilepsy. The possibilities of its variations in different persons would depend upon the character and extent of its pathological involvement, or proper development, and the variation in the same individual might be explained on its threshold of activity and its degree of impairment. Compensation for the cerebrospinal fluid absorption and the water balance of the tissues may be present for a certain length of time, but with accumulation of stored body fluid, or over-ingestion of liquids, there may occur periodic phases of decompensation, which may predispose to a seizure.

PRACTICAL CONSIDERATIONS.

THE DIET.

The effects of Ketonuria on the epileptic as shown by Wilder¹³³ and the elaboration of a Ketogenic diet for treatment of the epileptic by Peterman,^{92, 93, 94} has accomplished certain improvement, noted especially in children. Symptomatic cure in approximately one-third of the cases controlled on a Ketogenic diet is reported by Helmholz⁹⁵ and a similar percentage by Talbot.^{115, 116, 117}

The *rationale* of this treatment is to establish a relative acidosis to offset the waves of alkalosis, said by Jarloev to precede a seizure. Bigwood has placed emphasis on this alkaline value. The recent work of Frische and Fried,⁹³ after careful review of the subject found no changes in the pH that would warrant this assumption. Osnato⁹⁶ and Killian,⁹⁷ found no significant or characteristic biochemical change in the blood or spinal fluid of the epileptics studied by them. Lactic acid was found increased following an attack.

Lennox⁷⁹ and his co-workers, feel the variation is within the range of normal; a few cases showing a shift of the plasma toward the alkaline side of normal.

The Ketogenic diet has in its use a principal which however, is probably of distinct value when viewed in the light of the work by Gamble, Ross and Tisdall,⁹⁸ in their studies in metabolism of fixed base during fasting. They have demonstrated that there is a great reduction of general body water because of the low level of carbohydrate metabolism. Further, they show that there is actual reduction of intracellular water as well as extracellular water computed on the determination of fixed bases appearing in the urine, especially potassium, which according to their determinations is found in greatest amount in intracellular water and the actual intracellular loss can be closely computed. The figures given for computed water loss during a 15-day fast in one of their cases were as follows:

Intracellular water loss	
Due to destruction of protoplasm.....	1620 c. c.
Due to reduction of cell volume.....	470 c. c.
	————— 2090 c. c.
Extracellular water loss.....	320 c. c.
Total loss of body water.....	2410 c. c.
Loss of body weight.....	3920 gms.
Body weight loss due to water.....	62%

Here then, the reduction of carbohydrate in the diet to produce a ketosis must be considered in the light of its effect on body water and the rôle played by the dehydration in the presence of an acidosis.

Inasmuch as actual alkalosis changes in the epileptic have so far failed of convincing demonstration the dietary production of an acidosis to offset this uncertain factor does not seem reasonable. In the light of our ability to produce convulsive seizures in the normal dog or cat by the simple addition of excessive quantities of water by mouth, vein or in the subarachnoid spaces and the evident tissue edema which has been demonstrated (Weed, Kubie) following such a procedure it seems reasonable to presume the fluid presence in and about the tissues is the more important factor, its increase, diminution or mobility depending upon the acid-base variations and osmotic pressure considerations regulating its activity.

As yet there is no evidence on which to definitely base this assumption excepting negative findings regarding the degree of acid base fluctuations in the epileptic and the inference from the experience with dehydration that the increased elimination of fluid (purgation) and the following control and restriction of fluid intake brings about a definite improvement and symptomatic relief in the patient suffering from grand mal.

In the cases studied in my series, symptomatic acidosis from dehydration did not occur in a single case even on a liquid intake by mouth from $6\frac{1}{2}$ ozs. (200 c. c.) to $12\frac{1}{2}$ ozs. (400 c. c.) per day, I believe due to the ample carbohydrate included in the diet.

It is my belief that the value of the Ketogenic diet lies in its aiding in water elimination from the body and that, combined with control of liquid ingested, may offer even better results than those so far reported. Such a series is now being studied.

From the clinical standpoint the aim should be to seek the utilization of any means at our disposal to prevent the patient's seizures whether by control of a simple factor or a combination of methods to eliminate several factors is desirable. As our knowledge regarding the effectiveness of Ketogenic diet or dehydration increases there will probably arise combinations of both to suit the needs of the patient with modifications and the fortification of drugs or favoring of subsequent treatment by operation when focal lesions are demonstrable.

It will require time to determine the rôle that dehydration will play, as it is only one of the factors; though I believe it to be an important one in all cases. What its indications and limitations are can only be determined after others have applied it to a large group of cases under all conditions.

SUMMARY.

The mechanical theory of epilepsy has had many exponents in one form or another. Among the firm believers that some extra cerebral factor was concerned, we need only mention Kocher who looked upon increased intracranial pressure as perhaps the cause. Alexander favored increase in fluid over the cortex. Dandy has insisted that there existed some organic basis for the attacks. Elsberg and Pike considered the importance of increased intracranial pressure and suggested that decrease in intracranial pressure consequent upon the diminution of fluids taken might explain the relief seen in starvation. Foerster considers pressure and increased fluid as a factor associated with irritation from arterial pulsation. Mixter suggests the probable underlying cause being due to the failure of subarachnoid fluid absorption. Lind believes compression cerebral anemia to be the cause of seizures in the presence of intracranial pressure. "In the case of the epileptic and the epileptoid the presence of the predisposing heredity, the peripheral irritation or toxemia causes an increased irritability of the cerebral cortex which requires only the extra stimulation of the pulse beat upon an already compressed cortex, to produce the same effect as a mechanical irritation of the cortex. In many of the epileptics, in addition to this, there are sclerosed areas which will not expand, and when the brain increases in size under the influence of the increased blood supply, these sclerosed areas cause a certain degree of puckering which also acts as a mechanical irritation."

Swift¹³ believes that constriction due to distortion of the large venous outlets (sigmoid and lateral sinuses) may produce congestion of the venous flow from the cortex, and disturbance of cerebrospinal fluid absorption, with consequent backing up and fluid pressure. He has shown distortion of these structures and abnormalities in their development.

It is impossible because of our meager knowledge concerning many of these points to do more than indicate the factors which may be concerned in the mechanical consideration of this subject.

The outlook however, seems hopeful, with such a wide field of investigation now opening before us, to determine the significance of these new and unexplored considerations.

The addition of two new facts that may modify in part, as well as further substantiate this theory have been presented in this paper.

(a) The establishment of a characteristic as well as variable pathology demonstrable in the Pacchionian bodies in 150 brains so far studied for me by Dr. N. W. Winkelman. (b) The fact that prolonged dehydration may be carried out on certain patients for a period of a year without deleterious effects to their general health and that in the presence of this controlled dehydration this small group of patients suffering from generalized convulsive seizures with loss of consciousness have become attack free and have remained so, as long as the fluid intake restrictions established for them have been maintained. Those suffering from slight attacks or petit mal have not been benefited.

CONCLUSIONS.

No conclusions can be drawn from such a small and selected series of cases covering such a relatively short period of time. At present, our knowledge is too inadequate on many of the fundamental points involved to permit of more than the assumption that dehydration which has yielded certain results in those cases where it has been established may find a wider application in the convulsive state as a whole.

2025 Walnut Street.

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DISCUSSION.

DR. HARRY C. SOLOMON (Boston, Mass.).—I was very much impressed, Mr. Chairman, by these two papers. I am only sorry the members of the Epileptic Association have not heckled the presenters more to find out more about it.

There are two questions I should like to ask Dr. Fay. The first one is whether the dehydration theory cannot be made a little more in line with Dr. Lennox's, *e. g.*, that the dehydration may produce some of the physiological changes rather than the purely mechanical.

The other question is in the roentgenogram one of the pictures he showed us, the lateral ventricles did not appear. I wonder if he would give us the explanation of that. The subarachnoid space was well filled but the ventricles were empty. We have had a similar experience of that sort without any very satisfactory explanation.

DR. WILLIAM G. LENNOX (Boston, Mass.).—It seems to me these observations of Dr. Fay add a great deal to our growing knowledge about physiological conditions inside the cranium. Certainly the clinical observations add a new procedure to our list of procedures in therapy of epilepsy.

It would be extremely interesting to know whether this limitation of fluid intake actually resulted in a decrease in the cerebral spinal fluid pressure, and in measurable changes in the water content of the blood and body fluids; also, as Dr. Solomon suggested, whether there might be associated changes in the acid base equilibrium of the blood. One time I went without either food or water for a period of seventy-two hours, and during that time I had a great deal more acidosis than was present in other periods when going simply without food.

Members of the staff in institutions for epileptics often regret the fact they haven't laboratory facilities for studying epilepsy. For Dr. Fay's treatment, however, this needs only a pair of scales and a measuring vessel. It was asserted long ago that epileptics showed marked variation from time to time in weight and in the volume of urine which they excreted. This

matter of the relation of body weight and water balance with relation to seizure could be easily carried on in institutions.

I should expect that the best results would be seen only in certain types of patients. Certainly young individuals without evidence of organic brain disease are the best for the use of a Ketogenic diet. It would be interesting to know whether this type of patient is also the type which is benefited by the use of a low fluid intake.

DR. CHARLES R. BALL (St. Paul, Minn.).—I would like to ask Dr. Fay one question in particular, and that is whether he has noticed whether the dehydration treatment in these cases has had any deleterious effect on their general health. In our work in the psychoses we have patients come in that are very greatly dehydrated because they refuse to eat or drink. Sometimes they are in a serious physical condition. Oftentimes we have seen patients that had gone so far in dehydration that we couldn't bring them back.

In general we feel that in our nervous and psychotic patients dehydration is one of the things we don't want to bring about. I was wondering what effect it had on the epileptic cases, and if it had any harmful effect, and if one could perhaps use it in epileptics otherwise in good physical condition without danger.

CHAIRMAN COLLIER.—Is there any further discussion? I would like to ask, Dr. Fay, has there been any use of magnesium sulphate in these cases.

DR. TEMPLE FAY (Philadelphia, Pa.).—In reply to Dr. Solomon's question regarding the mechanical fact of dehydration and the physiological factor of acid base balance, this is a question which undoubtedly is interrelated, and we have as yet no explanation to offer.

I again wish to remind the meeting that these are observations over a period of only one year. During this time we can say, from the standpoint of dehydration itself, if maintained without sufficient nutritional factors to offset it, acidosis will occur, and the carbohydrate intake in some respect assists in the handling of this acidosis.

Dr. Solomon asked regarding the size of the ventricles. I am afraid the slide did not show the ventricle clearly in that particular case which Dr. Solomon pointed out, but it was a small E shaped ventricle that was filled by some factor which we hope will be disclosed. I have in mind what Dr. Solomon refers to is a case in which air does not reach the ventricle due to some obstruction of the Aqueduct. We have seen cases of brain tumors and other lesions produce this finding. We have no explanation for the film I showed you. Perhaps, as I say, it is another case of idiopathic epilepsy, which will prove to be, in some respects, symptomatic.

Regarding the decrease in pressure due to dehydration, we have seen a very marked fall in pressure after a period of dehydration, which has been well maintained.

In regard to the deleterious effects produced by dehydration, I can only say our observations are too limited, and they are over too short a time to draw any definite conclusions; but in one case, a boy of twelve has been on 243 c. c. of total fluid per day for almost a year. The diet has been strictly regulated so that his intake and output are almost identical. He has not lost weight outside of the first ten days to two weeks, in which he lost eleven pounds. He then gained gradually and has been in sufficiently good health to maintain his school work, and, as I say, shows nothing now from the standpoint of actual physical deterioration.

In another case, a boy of seventeen has been on a fluid intake of 800 c. c. There has been no definite deleterious effect. It is most important to regulate the dietary factor to get the balance of fluid. We find that under dehydration, they will frequently put out more than they are taking in, and we find this is a factor within the diet itself.

The effect of dehydration, without a compensatory offsetting of your acidosis by proper nutritional values, undoubtedly, will produce serious results, although we have not undertaken to place our patients in that position. We have attempted to maintain them on a carbohydrate diet sufficient to maintain the dehydration without the acidosis.

In regard to Dr. Collier's question concerning magnesium sulphate, we found about three years ago, that dehydration by magnesium sulphate was desirable if used with fluid limitation. One of the things that has made possible the regulation of these patients has been our experience in dealing with this feature. We find limitation of fluid does more than giving the patient a large dose of magnesium sulphate. In other words, without fluid limitation you are pouring in fluid only to take it away again by the magnesium sulphate.

If you limit the fluid intake, dehydration occurs automatically after a certain period. Occasionally, where the output has persisted over the intake, we have advised the use of magnesium sulphate from time to time.

I wish to say again, the subject is full of important observations to be made. At the present time, four men on our staff, are devoting their time to the study of this problem in order to perhaps correlate enough data to bring before you again in a more complete form. The hope will be this; that we may combine perhaps a series of observations in the larger institutions, and either verify these findings, or contradict them, in a sense; that perhaps the Ketogenic diet plus dehydration, or dehydration in modified forms can be resorted to later; we do not know. The subject is a new one; it is new to us, especially the pathology underlying the pacchionian bodies.

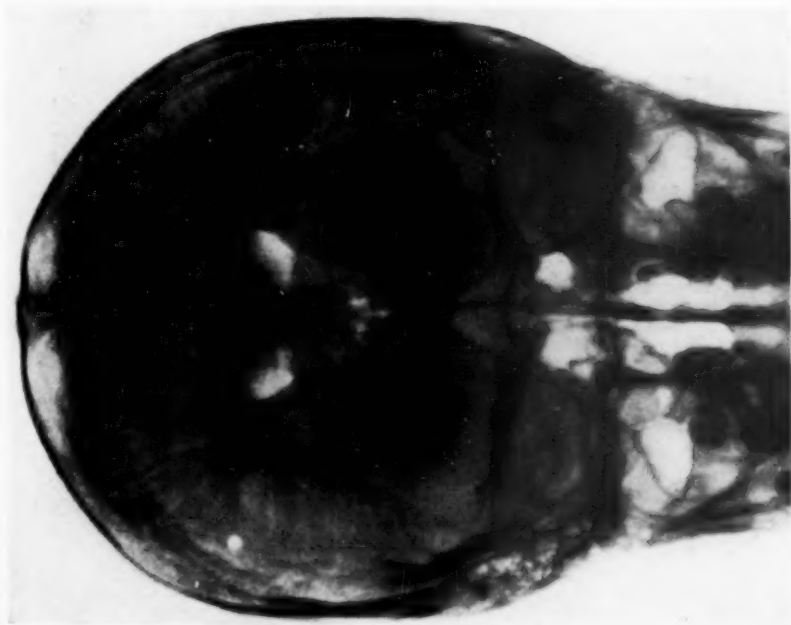


FIG. 1.—Anterior-posterior view showing normal air pathways. Note the presence of air at the vertex in the Pacchionian area, the diamond shaped third ventricle, the aqueduct and upper portion of the fourth ventricle. Both lateral ventricles are normally outlined. Air may be seen just above the corpus callosum. The longitudinal sinus is well shown and the falx seen separating the two hemispheres.



FIG. 1A.—Lateral view, normal encephalogram. Note the fine air markings following the sulci over the cortex, the slight increase of air at the vertex and normal ventricle. The descending horn is not seen. The cisterna chiasmatis and cisterna pontis are clearly defined. The third ventricle may be vaguely seen and the aqueduct of Sylvius noted. The air markings over the frontal lobe are normal.



FIG. 2.—Encephalogram of a 6-months old child suffering from generalized convulsions. Note the gross atrophy that has occurred at the vertex. The dark area between the cortex and the skull represents increased collections of fluid which have collected because of insufficient absorption by the subarachnoid villi producing pressure atrophy and external hydrocephalus.



FIG. 2A.—Lateral view showing marked wasting of the frontal pole and operculum, due to back pressure by cerebrospinal fluid that has reached the vertex but was not capable of being absorbed rapidly enough to prevent excessive accumulation. Probably secondary to birth hemorrhage with clogging of the subarachnoid filters by red blood cells with later organization and impairment of function. Note atrophy also over the occipital pole.

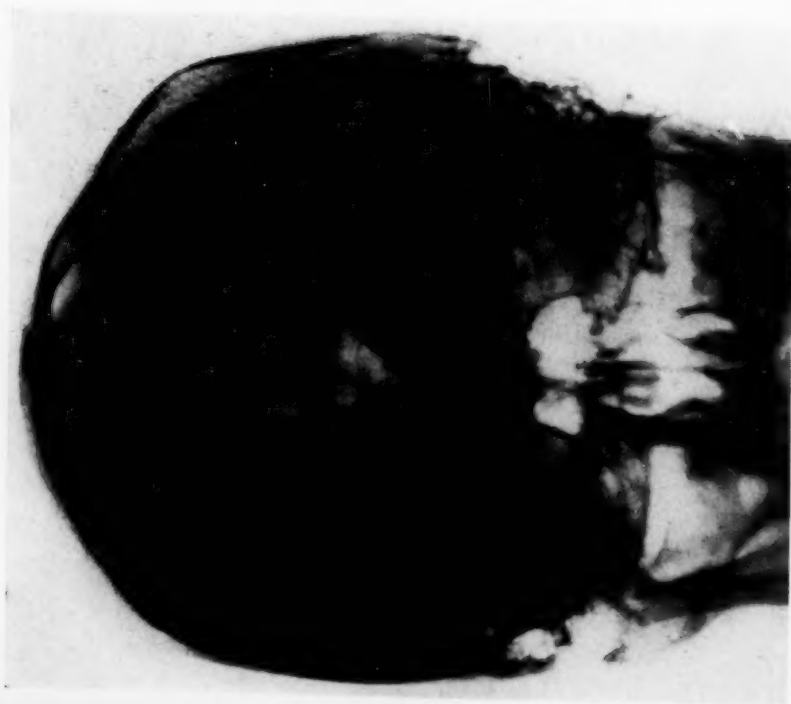


FIG. 3.—Anterior-posterior view. Lack of cortical pathways, deformed left ventricle, dilated right lateral ventricle flattened. Increased air over the left cortex in the region of the operculum. Posttraumatic epilepsy.



FIG. 3A.—Lateral view posttraumatic epilepsy. Note the few air channels present. (Plastic arachnoiditis). Large pathways over frontal pole and one large channel to the vertex. Deformed ventricular shadow.

VIII.
large pathways over frontal pole and one large channel to the vertex. Deformed
ventricular shadow.
left cortex in the region of the operculum. Posttraumatic epilepsy.



FIG. 4.—Encephalogram on a 3-months old baby suffering from Jacksonian convulsions since birth. Note the increase of air on the left side indicating gross brain destruction and atrophy occurring within three months time. The child was considered normal excepting for the convulsive seizures.



FIG. 4A.—Lateral view showing increased fluid areas at the vertex in the region of the main Pachionian bodies with gross brain atrophy. Impairment of the subarachnoid villi secondary to birth hemorrhage or trauma. (3-months infant.)



FIG. 5.—E. P. Adult case of so-called idiopathic epilepsy showing gross distortion and enlargement of the ventricles with absence of cortical air shadows, indicative of a plastic arachnoiditis over the cortex. Verified at operation, milky arachnoiditis with edema and distention of the few remaining pathways.



FIG. 5A.—E. P. Lateral view of same case showing enlargement of the lateral ventricles, 4th ventricle and cisterna chiasmatis produced by back-pressure from an extensive cortical arachnoiditis.

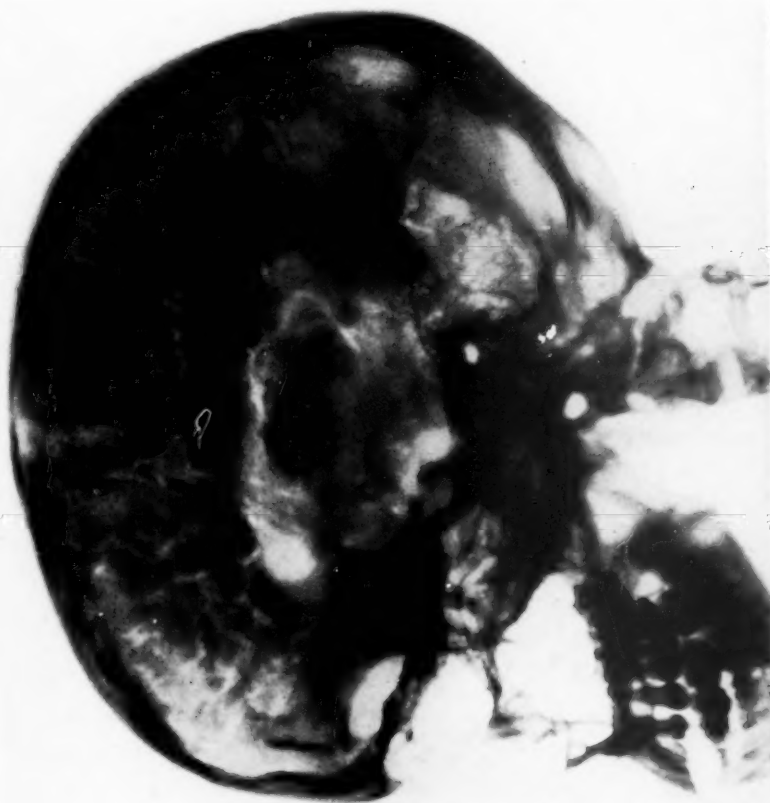


FIG. 6A.—Lateral plate of an encephalogram on E. G., page 802. Note the increase of air (in place of fluid) over the frontal pole. The cisterna chiasmatis is enlarged, the ventricles are about normal, the fluid pathways are slightly dilated over the cortex. Verified at operation. Increased subarachnoid fluid as well as extra-arachnoid fluid with extensive arachnoiditis. Former diagnosis idiopathic epilepsy.

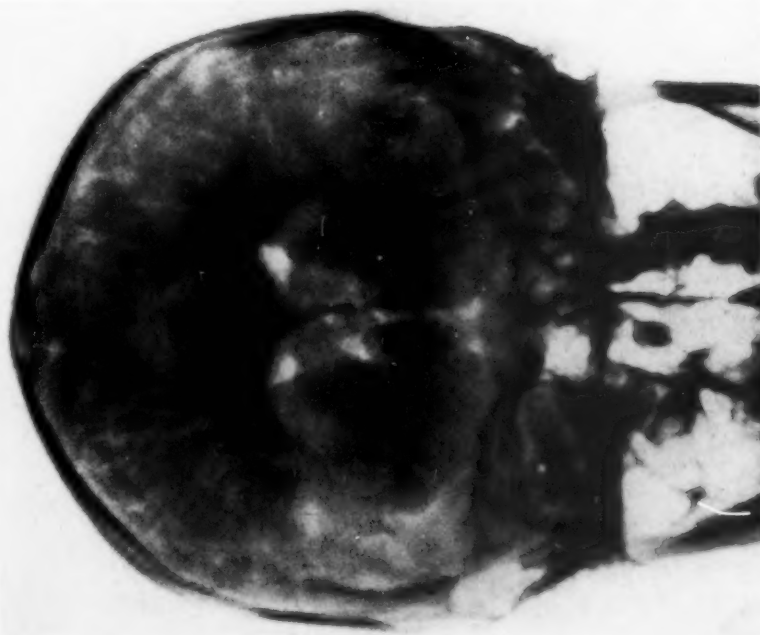


FIG. 6.—Anterior-posterior view of encephalogram on E. G., page 802. Increased air film over the temporal lobes on each side especially the left. This air is in the region of the Sylvian fissure. Arachnoiditis and increased fluid verified at operation.



FIG. 7.—Normal cortical pathways of cerebrospinal fluid over the cortex to reach the Pacchionian bodies. Unless obstruction of the frontal pathways exists there is little circulation over the temporal and occipital lobes. Note area of cerebrospinal fluid circulation closely corresponds to the portions of the brain found atrophic or under-developed in the mental defective group. The motor area lies in the center of these pathways and thus might be easily affected by disturbances of cerebrospinal circulation if obstruction to the outlet of fluid occurred by disease of the Pacchionian bodies at the vertex.

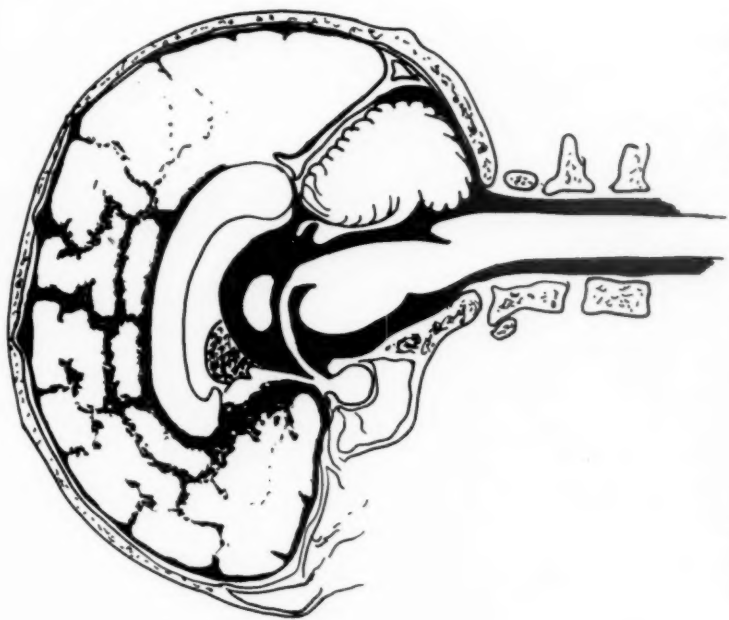


FIG. 9.—The normal subarachnoid pathways of spinal fluid to reach the vertex. A large portion of the fluid finds its way up the midline over the corpus callosum, directly to the Pacchionian bodies on each side.

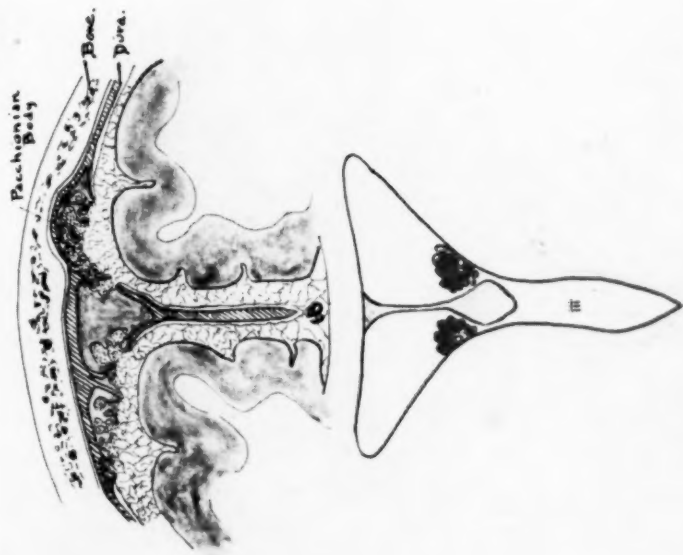


FIG. 8.—Diagrammatic relation of the subarachnoid space, arachnoid villi, and longitudinal sinus. The underlying ventricle and choroid plexus are also shown.

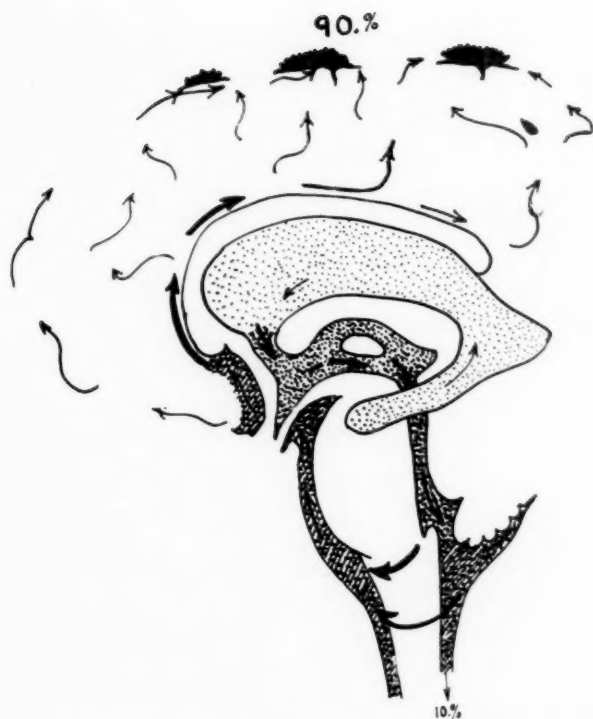


FIG. 10.—Outline of the spinal fluid pathways from the ventricles to the vertex. 90 per cent is absorbed by the subarachoid villi or Pacchionian bodies, situated at the vertex.

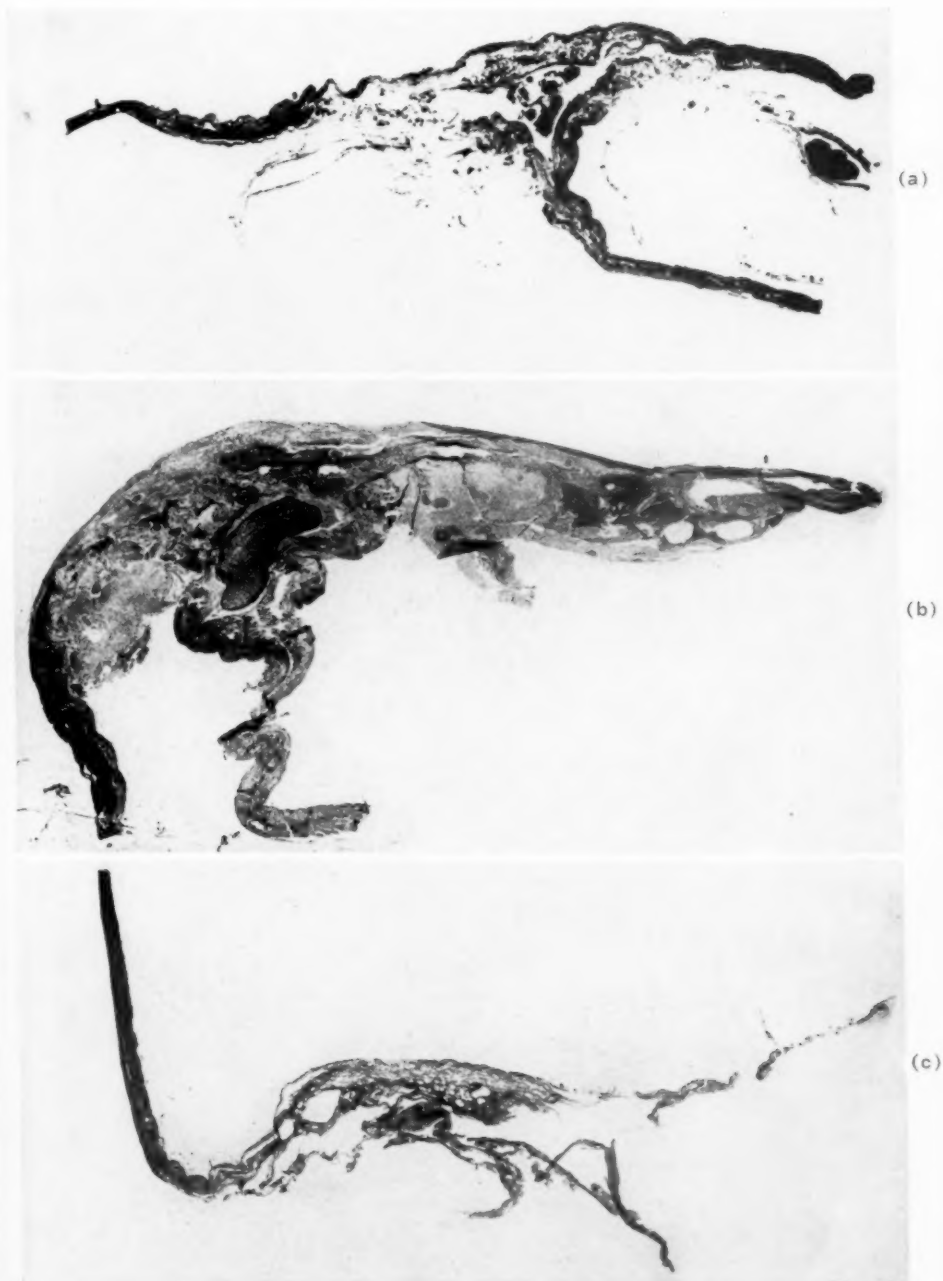


FIG. 11.—Identical enlargements of the dura and Pacchionian system in three types of cases. *a*. Normal section through the longitudinal sinus including the Pacchionian bodies. *b*. Section through the same area in a case of acute inflammatory reaction (meningitis). *c*. Pacchionian body area in a case of epilepsy. Note the increase in dural sinuses; the small and imperfect arachnoid space and villi, probably the final stage of either former inflammation or improper development. (Winkelman.)

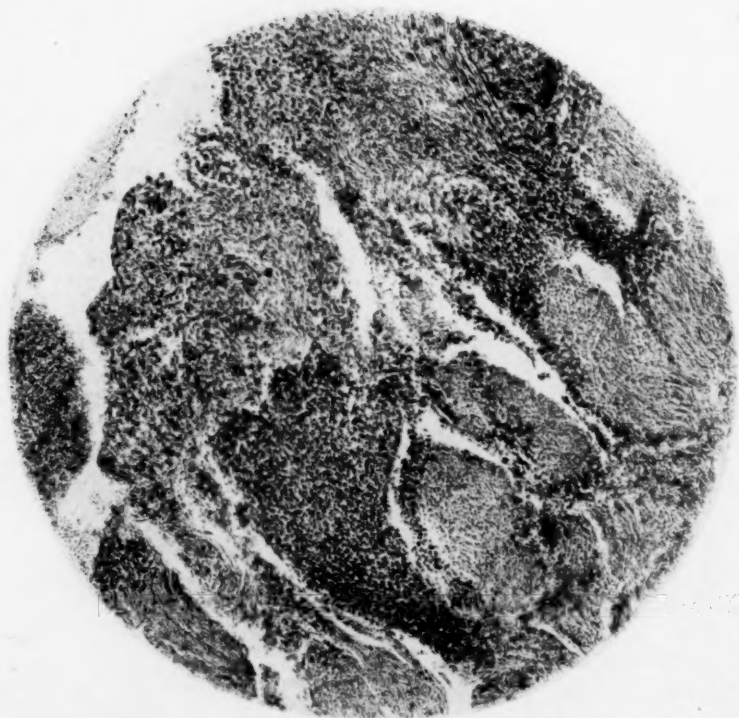


FIG. 12.—Arachnoid villus filled with red blood cells from a recent hemorrhage into the subarachnoid space, 7 cm. distance from the vertex (temporal lobe). (Winkelmann.)



FIG. 13.—A Pachionian nodule under higher power. Note the mesh work within its structure. Involvement of the dural covering, the subdural space or the meshwork within the body itself offers three possible pathological disturbances of function. (Winkelmann.)



FIG. 15.—Showing two normal Pacchionian bodies projecting into the dural envelope. Note the space between the dura and the pia-arachnoid, the bottle-like constriction of the dura *A* about the point of entry and the pia-arachnoid layer separating the subarachnoid space from the subdural space. The Pacchionian bodies do not enter a dural sinus. (Winkelman.)

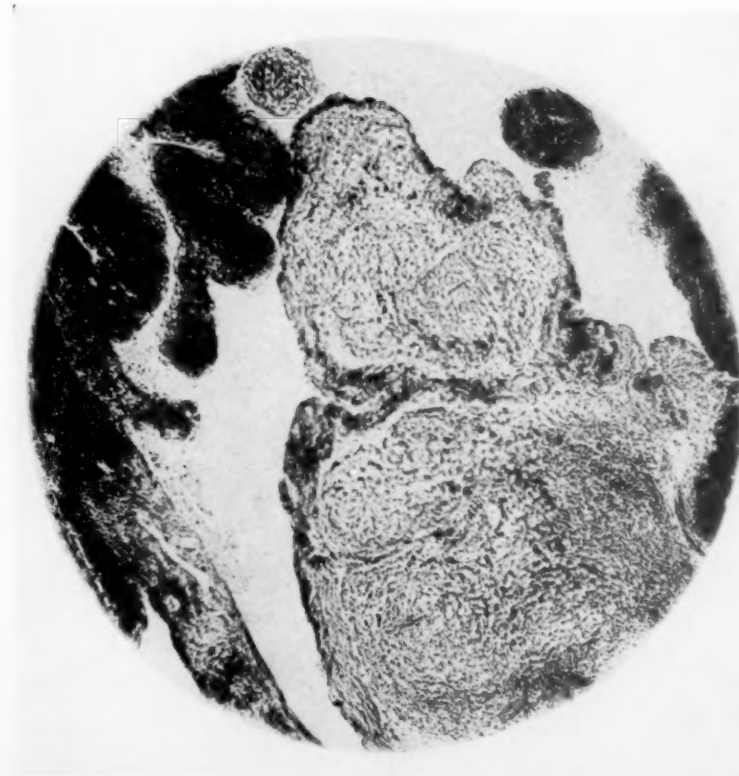


FIG. 14.—Showing the reticular meshwork within a Pacchionian body. Normally filled with cerebrospinal fluid this sponge-like structure may be crammed with white cells in meningitis or crowded with red blood cells and their pigment following hemorrhage in the subarachnoid space even at a distance. (Winkelman.)

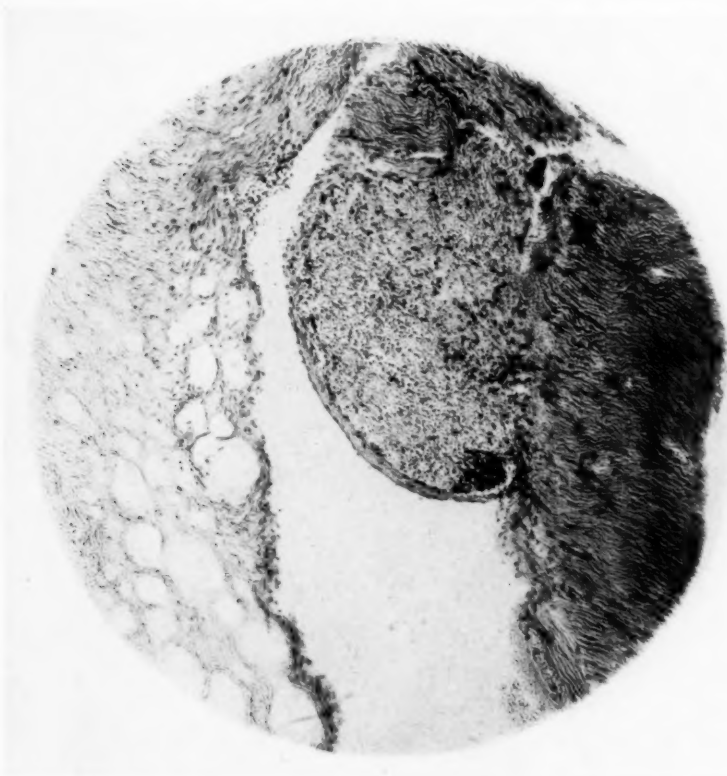
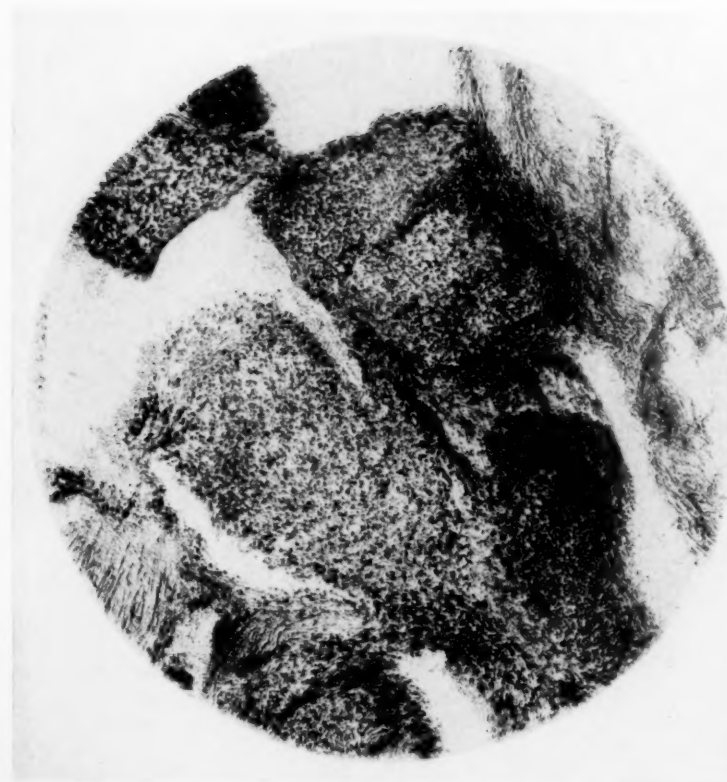


FIG. 16.—Section of the Pacchionian bodies showing red blood cells within the structure of the arachnoid meshwork and the presence of red cells in the space between the dura and the arachnoid villi. (Winkelman.)



FIG. 18.—Chronic degenerative changes within the arachnoid villi. (Winkelman.)

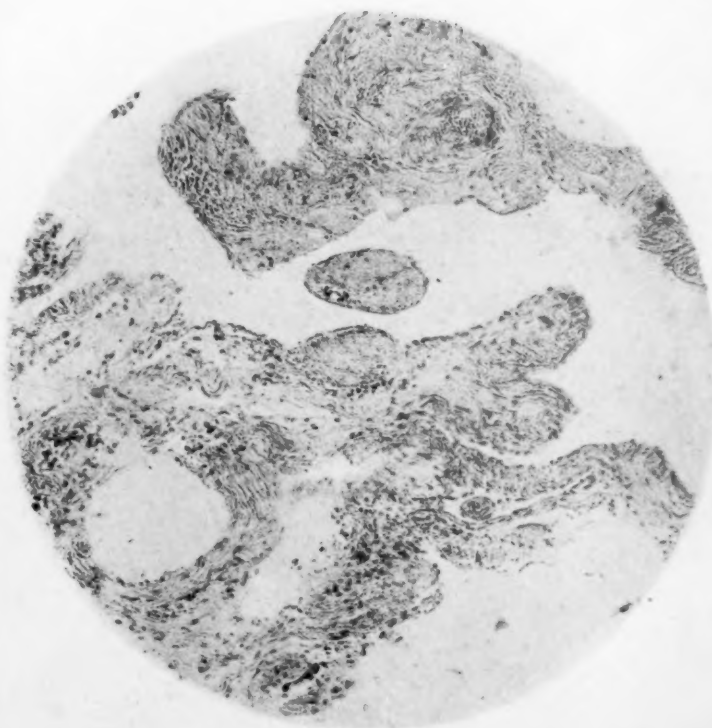


FIG. 17.—Poorly developed arachnoid villi from a case of epilepsy. (Winkelman.)



Fig. 19.—Schematic representation showing the course of cerebrospinal fluid from the ventricles through the cisterna magna, pontis and chiasmatis to finally reach, by means of its cortical pathways, the vertex and find absorption through the Pachionian bodies. An obstructive lesion at *B* (Foramen of Monro) would cause a dilatation of one ventricle, at *C* enlargement of both as well as at *D*, though a large lesion at *E* would produce moderate dilatation of the ventricles. In one and acute symptoms of pressure—small lesion (angle tumor) at *E*, would produce moderate dilatation of the ventricles and acute symptoms of pressure—whereas a large lesion at *F*, especially of the opposite hemisphere, Volume displacement in *C* might impair even the pathways over the opposite side and thus produce pressure. A widespread inflammatory lesion at *C* involving all six of the Pachionian bodies would produce an acute external hydrocephalus with high pressure. Partial involvement of these structures (one or more) would lower the threshold for compensation when need for full activity of all was demanded, thus certain individuals might compensate under controlled cerebrospinal fluid production; but would not, in the presence of excessive amounts, be handled by an unpaired absorptive mechanism.

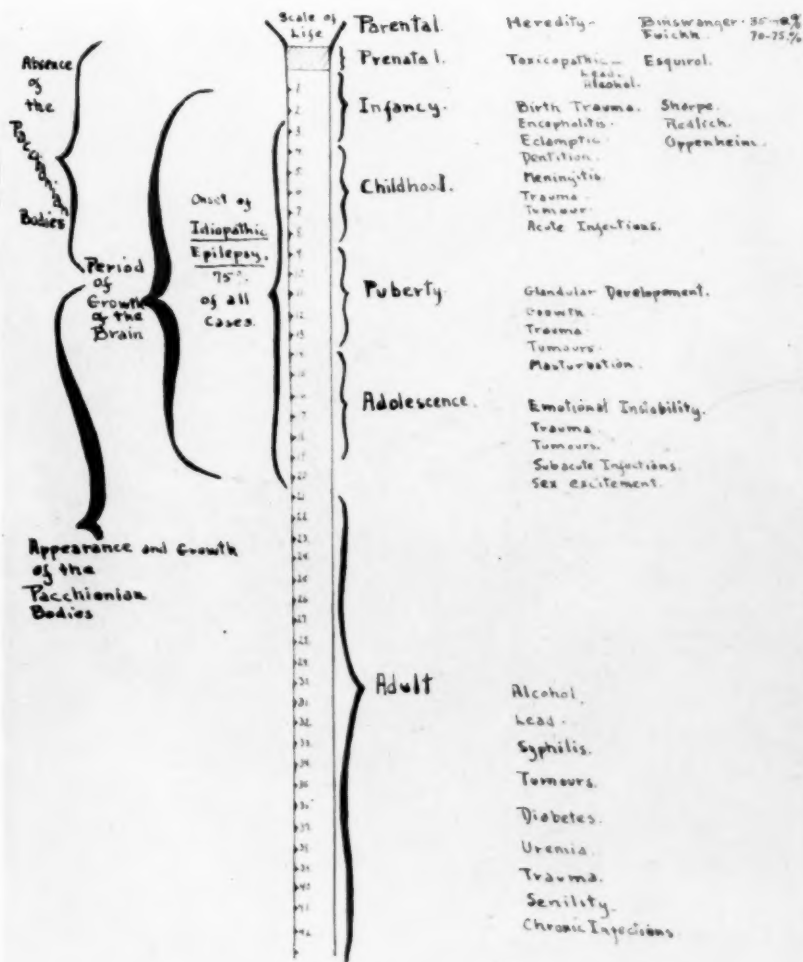


FIG. 20.—Chart showing the relationship of Pacchionian body development and brain growth to the incidence of epilepsy of the so-called idiopathic type. The pathological factors that may affect Pacchionian function or brain growth are noted on the right. Some emotional factors stressed by certain authors are also included.

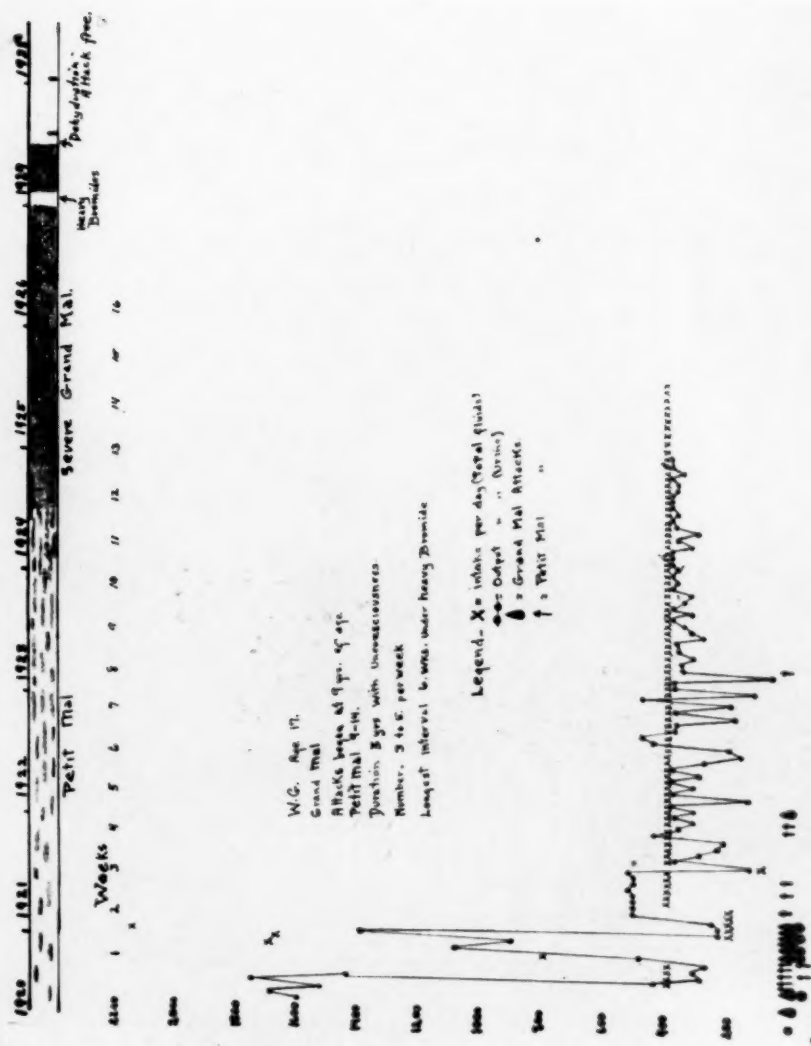


FIG. 21.—Showing effect of limitation of liquids in controlling grand mal attacks. During first five days of limitation attacks changed to petit mal (patient had had no petit mal for three years). Free intake of fluid on the sixth day precipitated a series of grand mal attacks twice daily, requiring four days of dehydration to become attack free. Has remained so now for 11 months with two exceptions after indiscretion with fluids.

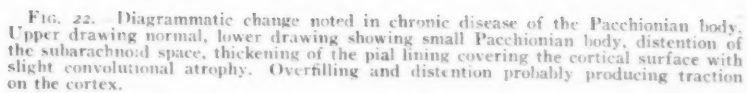


FIG. 22.—Diagrammatic change noted in chronic disease of the Pachionian body. Upper drawing normal, lower drawing showing small Pachionian body, distention of the subarachnoid space, thickening of the pial lining covering the cortical surface with slight convolitional atrophy. Overfilling and distention probably producing traction on the cortex.

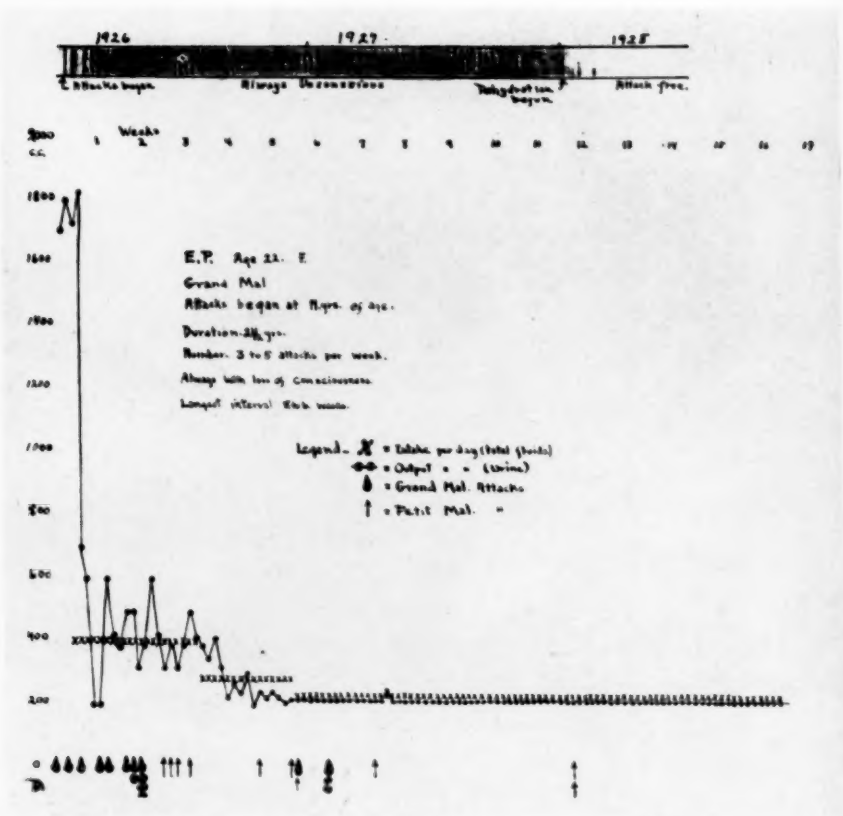


FIG. 23.—Case having 3 to 5 grand mal attacks per week for two and one-half years. Liquid intake limited to 400 c. c., later to 200 c. c. Grand mal seizures disappeared in 5 weeks. No attacks of grand mal for past 7 months.

Note marked fall in output under fluid regulation with final level of adjustment.

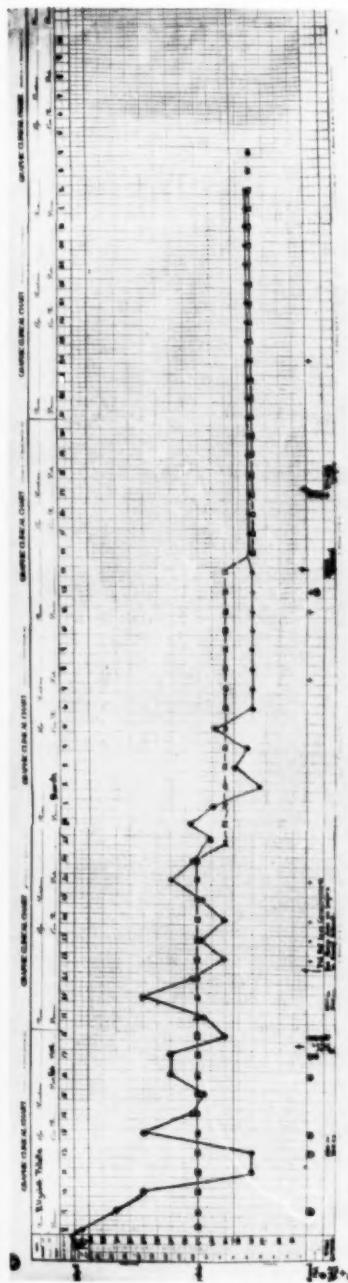


FIG. 24.—Chart showing initial stage of dehydration. (E. P.) Urinary output and liquid intake. Note intake level was started at 400 c. c. daily, then dropped to 300 c. c., and finally maintained at 200 c. c. before attacks disappeared. Black dots in lower margin indicate grand mal attacks. X indicates petit mal. Final series of grand mal attacks occurred at her menses. None since (five months).

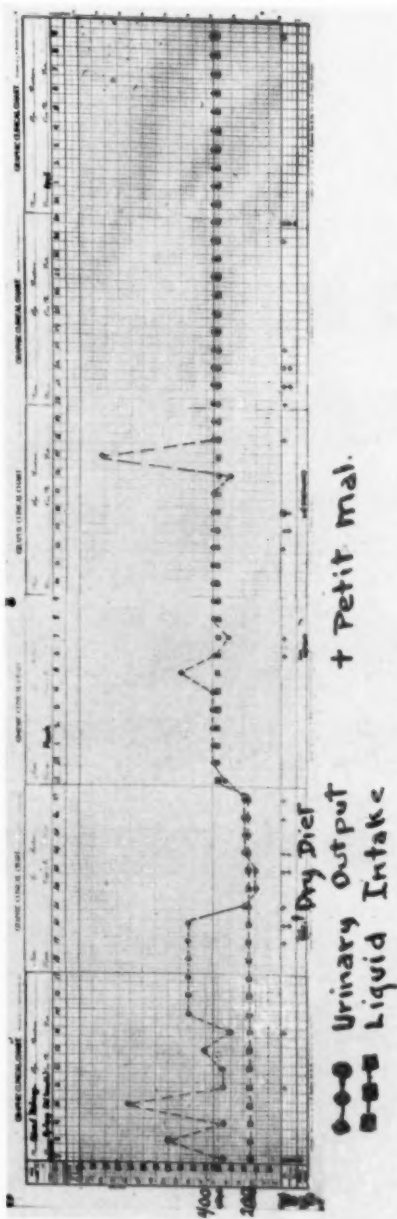


FIG. 25.—E. M. Liquid intake and urinary output chart showing output level above intake. Correction of diet to dry diet brought about a readjustment of the fluid level and made possible increase in liquid intake as patient was free of grand mal attacks and has been for over one year. Formerly 19 to 25 attacks per month. X represents petit mal attacks which have persisted. No explanation can be offered for the sudden rise in urinary output on two occasions.

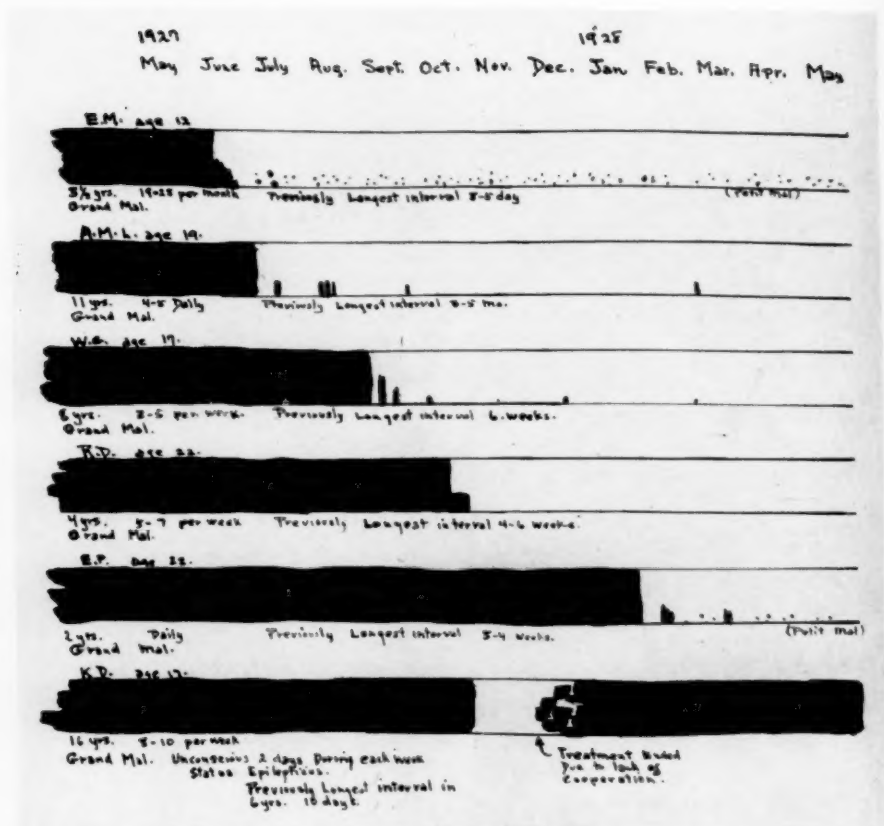


FIG. 26.—Series of cases showing the results of dehydration and limitation of liquids during the past year. Black areas represent the presence of grand mal seizures which had not responded to any form of former treatment. Note two cases with persistent petit mal and one failure (K. D.). See page 817.

THE RELATION OF CERTAIN PHYSICOCHEMICAL PROCESSES TO EPILEPTIFORM SEIZURES.*

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The possible conditions which may cause or contribute towards seizures are many and complex. This is true not only for a group of patients, but for the individual patient as well. Our conception of the part played by some of these conditions is represented by the accompanying chart. (Fig. 1.) The lower half of the diagram enumerates possible contributing conditions arising outside of brain tissue, such as disturbances in respiration, in the function of the gastro-intestinal tract, of endocrine glands, of the circulatory or of the autonomic nervous system. The upper half of the chart gives a place for the psychogenic factor (which we shall not attempt to discuss) and for abnormalities of the brain tissue. Such abnormalities may be either functional or structural. The main source of disturbances making for seizures are therefore three: Those arising outside nervous tissue, those due to organic lesions, and those due to functional abnormalities of nervous tissue. The part played by each must vary tremendously in different individuals, and in the same individual from time to time. The small circles to the right of the figure suggest different values for these three factors which might be found in individuals whose seizures seemed to be associated with, respectively, a brain injury, a disturbance in body metabolism, or with no demonstrable abnormality either in the brain or the rest of the body.

The sector marked "B" is given a large value in all these different conditions. This is for the reason that, of the persons who have definite brain lesions or defects elsewhere in the body, but a small proportion react with fits. Therefore functional disturbances of nervous tissues presumably must be an important factor in every person who is subject to seizures. The real cause

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Section on Convulsive Disorders, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

for this increased susceptibility to seizures, like individual susceptibility to infections, to cancer, and to many of the ills which affect mankind, is unknown. There is accumulating evidence, however, that changes in the physiological processes in the brain are capable of modifying the tendency to seizures. Observations which we will present are a continuation of those given before this gathering two years ago. Because of the brief time at our disposal, we can give but a summary of our results. Most of them, together with the literature on the subject, have been presented in detail in a recently published monograph.¹

Our first thesis is this; acidosis tends to inhibit, and alkalosis to augment seizures. A condition of acidosis may be induced in various ways. The most important means is the use of fasting or a diet which is rich in fat and poor in carbohydrate. Beginning with Geyelin,² reports from various authors have demonstrated the effectiveness of this treatment in young patients. The accompanying chart (Fig. 2) shows the striking diminution in seizures in one of our patients while fasting and while on a ketogenic diet.

A second method of inducing acidosis is through the ingestion of acids or of acid-forming salts. Although Peterman³ in a recent paper states that this procedure is without effect on seizures, in our experience acidosis induced by this means acts in the same direction, though not to the same extent, nor for as long a period as acidosis induced by ketosis. The accompanying chart (Fig. 3) demonstrates that in this particular patient the daily number of seizures closely paralleled the percentage of bicarbonate in the blood, both during fasting and during the administration of calcium chloride and of ammonium chloride.

A third method of inducing acidosis is through vigorous physical exercise. By keeping record of seizures by hours we found that some of our patients having very frequent light spells have comparatively few when exercising.

A fourth temporary method of inducing acidosis is by increasing the carbonic acid in the blood through rebreathing or through inhalation of air containing a high percentage of carbon dioxide. In one of our patients who was having short seizures at intervals of less than a minute, rebreathing resulted first in a decrease in severity and then in an absence of seizures for the period of

rebreathing. In other patients we have demonstrated that procedures which will induce seizures in susceptible individuals, will not do so if the inhaled air contains an increasing amount of carbon dioxide. (See Fig. 5.)

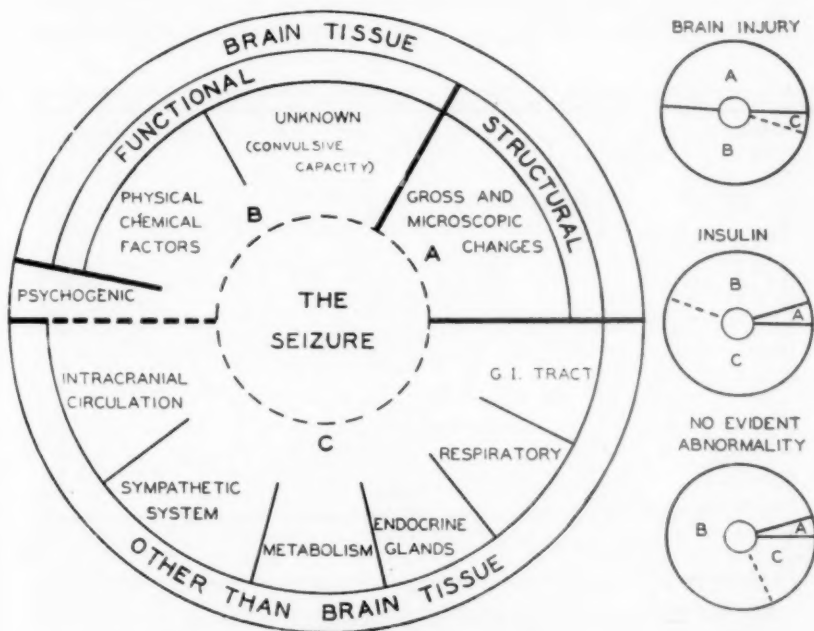


FIG. 1.—Diagrammatic representation of possible factors involved in a seizure. The large circle gives a place for a number of possible factors without attempting to assign a value for them. The three small circles on the right represent three different types of cases. In a patient with definite brain injury the structural abnormality of brain tissue would be large. In a patient having convulsions from hypoglycemia due to over-dosage with insulin the factor arising outside the brain tissue would occupy the largest part of the circle. The lowest small circle represents the hypothetical condition in which no abnormality either of body or brain structure can be demonstrated before or after death. Here the functional disorder of brain tissue occupies most of the picture. (From *Epilepsy* by Lennox and Cobb.)

Alkalosis, as has been stated, tends to increase the frequency of seizures. Here the best evidence is furnished by the reverse of the condition last mentioned. If carbon dioxide is expelled from the blood by voluntary forced breathing, the blood becomes more alkaline, and a seizure may result. This fact, shown first by Rosett⁷ and by Foerster,⁸ has been confirmed by various observers. We

have made graphic records of the respiration in the experiments which we have performed. One such record is shown in the accompanying chart (Fig. 4). A second method of inducing alkalosis is through the ingestion of large amounts of alkali. If such ingestion results in a sudden upsetting of acid-base relations an increase in the number of seizures may result. When seizures

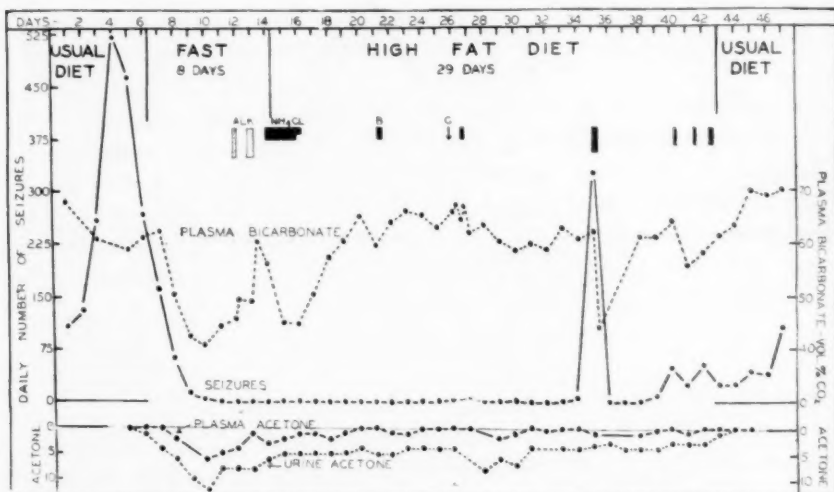


FIG. 2.—The effect on seizures of patient D. T. of acidosis induced by fasting and the use of a high fat diet. This patient in the pre-fasting period was having from 100 to 500 short clonic seizures daily. On the fifth day of fast they disappeared entirely, the beneficial effect being maintained even after the usual diet was resumed. (From *Epilepsy* by Lennox and Cobb.)

have been stopped by means of fasting or a fat diet, giving sodium bicarbonate may cause their reappearance. (See Fig. 3.)

Our second thesis is this; an increased tension of oxygen in the tissues tends to inhibit, and a decreased tension to augment, seizures. During the past year we have been able to make clinical demonstration of this fact. Six of our patients who have numerous light attacks, or petit mal, daily, have their usual type of seizures when they breathe an atmosphere containing an abnormally low percentage of oxygen. To carry out this test we attach the patient to an apparatus for the measurement of oxygen consumption

(basal metabolism), but fill the bell of the machine with room air, in place of with oxygen. As the patient respires, he consumes a portion of the oxygen in this air. When the percentage of oxygen has been reduced to a point which varies for each individual, but which in the normal person produces no symptoms, a seizure results. On the other hand, if pure oxygen is breathed—or oxygen

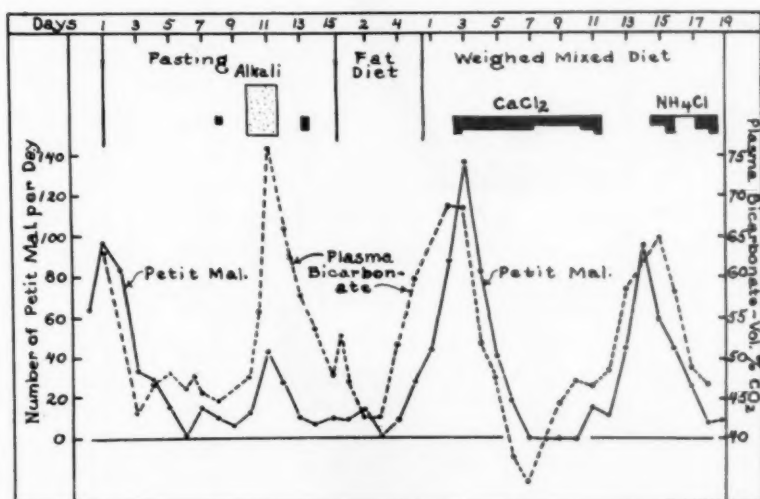


FIG. 3.—Observations of patient L. R. showing that the administration of calcium chloride and ammonium chloride in 15-gram doses daily produced an acidosis and reduced the daily number of seizures. The extent of these changes are as great as those produced by fasting and the use of a fat diet. During the midst of fasting 125 grams of alkali were administered by mouth with resulting increase in the daily number of seizures. (From *Epilepsy* by Lennox and Cobb.)

which is under pressure—an impending seizure may be prevented. One of our patients who always has a seizure with two minutes or less of hyperpnea when breathing atmospheric air, requires a longer period of hyperpnea to induce a seizure when breathing oxygen.

The two conditions which have been mentioned, alkalosis and anoxemia on the one hand, and acidosis and increased oxygenation on the other, supplement each other. The chemistry of the blood is such that in the presence of acidosis oxygen is more readily given up by hemoglobin and more oxygen is available for use by the body tissues. The extent to which alkalosis and anoxemia may combine

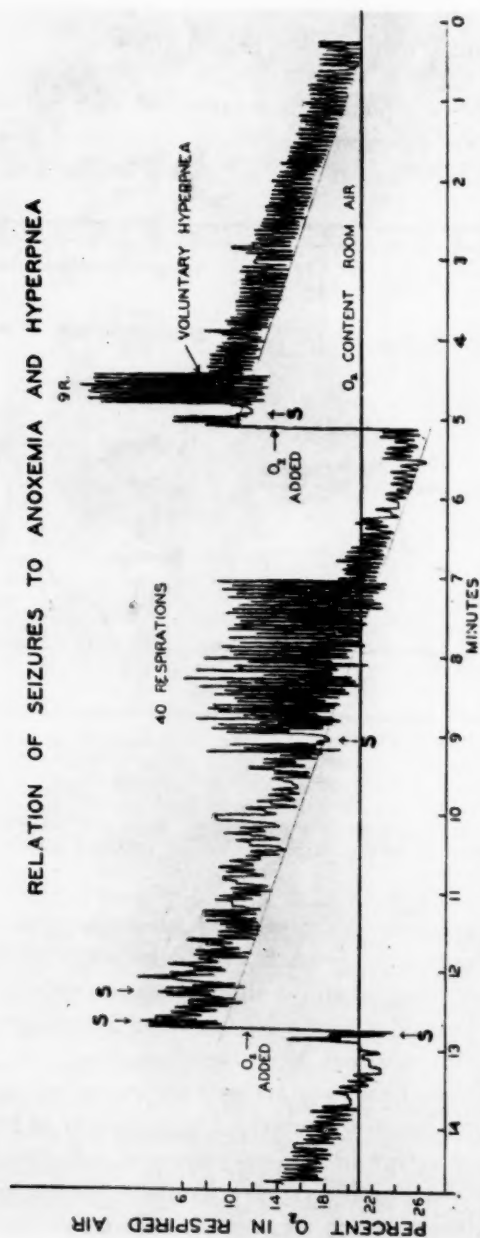


FIG. 4.—The effect of hyperpnea on seizures with various concentrations of oxygen in the respired air. The ordinate represents percentages of oxygen in respired air; the abscissa, minutes. Record reads from right to left. S indicates the point at which seizures occurred. (From *Epilepsy* by Lennox and Cobb.)

in inducing a seizure more readily than either alone is indicated by the accompanying record. (Fig. 4.) This patient when breathing air containing approximately 12 per cent of oxygen had a seizure after nine deep breaths. When the oxygen content was increased to that of room air it required forty deep respirations to produce a seizure. When the percentage of oxygen had fallen to approximately 10 per cent the patient breathing quietly, seizures occurred spontaneously, ceasing abruptly when the percentage of oxygen was increased to that present in atmospheric air.

As we have just shown, a decrease in the carbon dioxide content of the blood augments the lack of oxygen. The opposite condition also holds true, an increase in carbon dioxide will tend to offset any deficiency in oxygen. One of our patients uniformly had a petit mal when oxygen of the respired air fell to approximately 7.5 per cent. In the test recorded in Fig. 5, the patient was re-breathing atmospheric air, but the expired carbon dioxide was not absorbed. It continued to accumulate at the same time that the oxygen decreased. The patient did not have a seizure, though the oxygen content of the respired air at the end of the test was only 5.6 volumes per cent. Even in the face of hyperpnea performed in air containing a low percentage of oxygen, seizure may not result if the expired carbon dioxide is allowed to accumulate. On the basis of these experiments we should expect that inhalation of air rich in both oxygen and carbon dioxide might be useful as an emergency measure in the treatment of youthful patients in status.

In the course of these studies we have encountered several patients who, like the patients previously mentioned, were having many light attacks daily but who, unlike them, did not respond to induced anoxemia or alkalosis by having a seizure. Studies which we are making of the respiratory metabolism and of the peripheral circulation of these two classes of patients under various experimental conditions may throw additional light on the mechanism through which these procedures affect the frequency of seizures.

Our third thesis is, edema of the brain tends to increase and dehydration to decrease, seizures. Increased permeability of capillaries, increased intracranial pressure and edema are three phases of the same process. This factor of edema is also interrelated with those just mentioned. Anoxemia results in passage of fluid out-

PATIENT REBREATHING—EXPIRED CO_2 NOT ABSORBED.

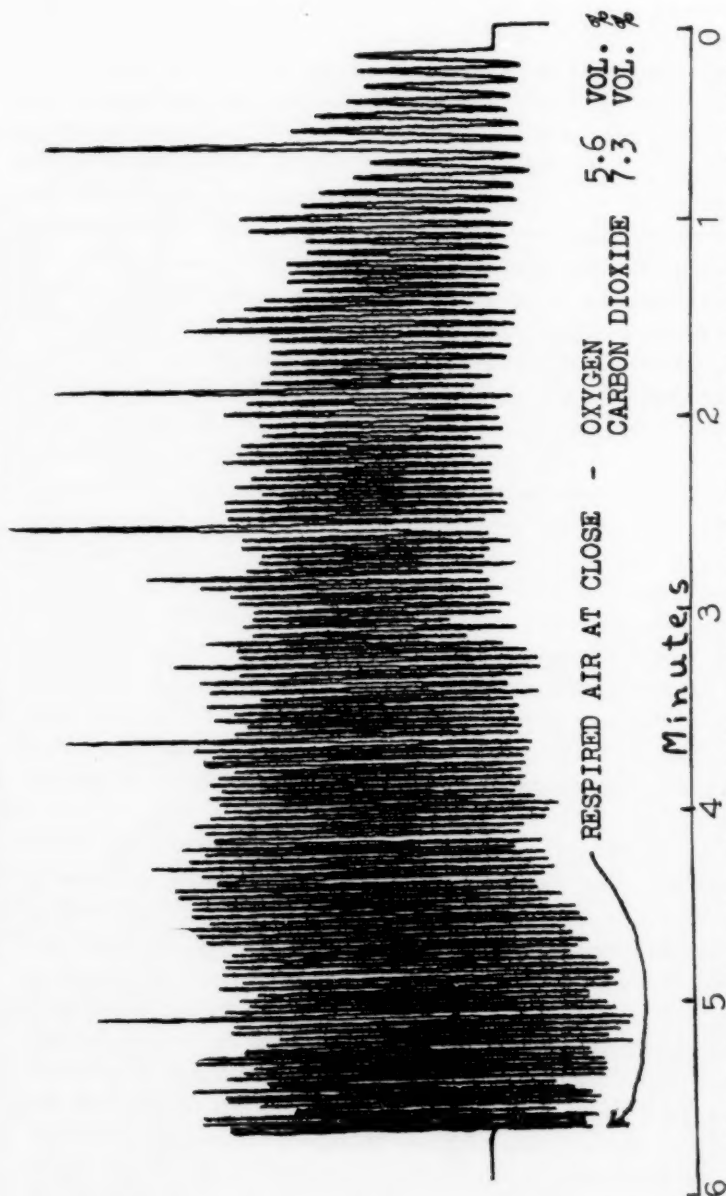


FIG. 5.—Increasing carbon dioxide in the respired air offsets the effect of decreasing oxygen. This patient, C. G., uniformly had a seizure when the oxygen of the respired air had fallen to approximately 7.5 volumes per cent. In this experiment the expired carbon dioxide was not absorbed. At the end of the experiment she had not had a seizure in spite of the fact that the oxygen content of the respired air had reached the very low point of 5.6 volumes per cent. Carbon dioxide measured 7 volumes per cent.

ward through capillary walls. Alkalosis makes for tissue edema, acidosis for dehydration. Before this gathering last year Syz⁶ reported that injury to the brains of frogs made these brains more permeable to the entrance of a convulsant dye. The clinical demonstration of the importance of this factor is not so easy, because of the difficulty in greatly altering the balance of fluids in the body without at the same time changing acid-base relationships. Although a general increase in intracranial pressure seems to favor the precipitation of fits, this is not always the case. For example, the act of overventilation which may precipitate a seizure is attended by a fall in spinal fluid pressure. Concerning dehydration, which is presumably not attended by acidosis, Fay has some new and extremely interesting clinical observations to report.

Besides the three factors which have been discussed, there are undoubtedly other related changes in physicochemical processes which modify the tendency to seizures. Alteration in chemical constituents of body fluids plays a part. Increase in the percentage of chloride and decrease in the percentage of ionized calcium and of glucose in the blood, seem to contribute toward seizures.

Finally, the supply of blood to the brain is without doubt of major importance. At this meeting last year, Forbes and Wolff⁷ demonstrated that the arterioles of the pia mater are under vasomotor control. Therefore the old theory of spasm of cerebral vessels assumes a new prominence. Furthermore, the same authors observed that dilatation of pial vessels accompanies certain of the procedures which we have shown to operate against seizures, viz., increase of carbon dioxide or other acid substances in the blood. Using the technique of Myerson and Halloran⁸ for obtaining blood from the internal jugular vein, we have examined the blood of a number of epileptic patients. These have shown an unexpectedly low content of oxygen in such blood, as compared with blood from the arm. This suggests slow flow of blood through the brain, though we are not sure as yet that the condition is an abnormal one. The question of intracranial circulation is one on which we are working but which lies outside the scope of this paper.

Bearing in mind these different observations we might assume in the induction of a fit some such physiological mechanism as the following. Contraction of cerebral vessels might lead to a decrease in the oxygen supply to the brain. Because of the anoxemia

there would be dilatation of capillaries with passage of fluid outward through their walls. One or more of these factors, decreased oxygen tension, edema, increase in intracranial pressure might lead to abnormalities in the activity of cortical neurones and a fit. Consequent on the convulsion there would be an accumulation of carbon dioxide and lactic acid in the tissues which would initiate a reversible reaction. Accompanying the acidosis there would be an increase in the utilization of oxygen by the tissues, a passage of fluid into the capillaries and a restoration of normal intracranial circulation. It should be emphasized that these processes are only contributory. They may be effective only in persons with a tendency to seizures and with those having some pathology either in the brain, the body, or the emotional life.

More than 2000 years ago the father of medicine at the close of his dissertation on epilepsy, makes this bold prophecy, "but whoever is acquainted with such a change in men and can render a man humid and dry, hot and cold by regimen could also cure this disease—without minding purifications, spells and other illiberal practices of a like kind." If we translate his words into modern terms we may now say, "whoever is acquainted with physiology and can render a man acidotic, dehydrated and fully oxygenated could also repress this disease, without minding purification of narcissistic personalities, ritualistic empirical diets and all other illiberal practices of a like kind."

Unfortunately it is not possible to maintain persons in an acidotic, dehydrated and oxygenated condition. At the present time the only unusual proven therapeutic application of these observations is the use, in children, of a ketogenic diet. However, these observations re-emphasize the importance of general matters of health and of physical well being, considerations which are too often neglected in the treatment of epileptics. Correct posture and habits of breathing make for better oxygenation of blood, the process of muscle "training" results in a more efficient peripheral circulation and a steadier acid-base balance. The single word which will best describe the type of chronic patients congregated in institutions is "stagnation." In early epileptics, stagnation either of blood, of bowels or of mental processes, is a condition to be avoided.

Whatever the therapeutic applications, the facts which have been mentioned bring us to a better understanding of some of the physiological processes which may influence the activity of nervous tissue and thus modify seizures. They point the need for further work in this rich and as yet little explored field.

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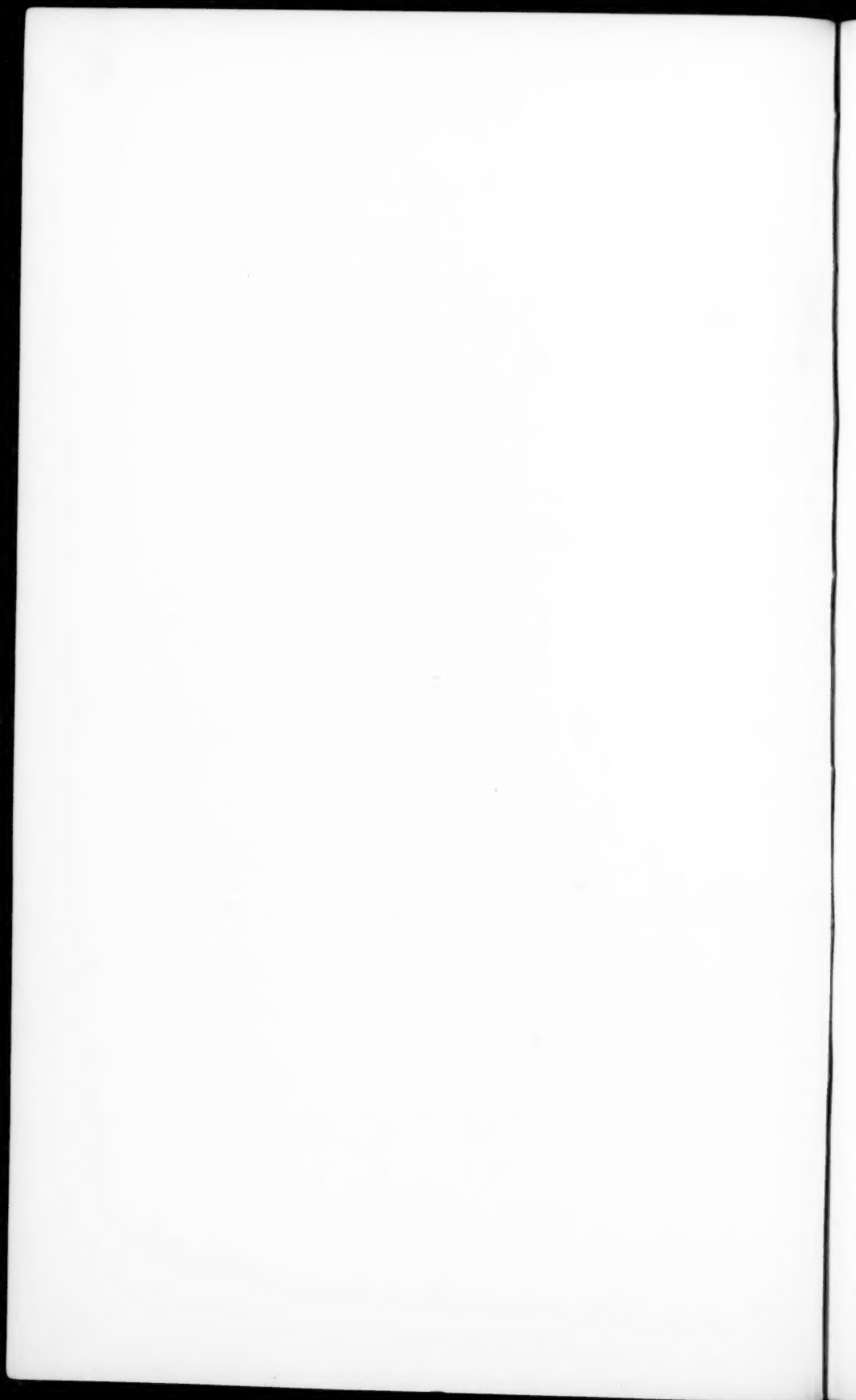
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DISCUSSION.

DR. TEMPLE FAY (Philadelphia, Pa.).—Mr. Chairman, I wish to emphasize the importance of what Dr. Lennox has brought before us today, and perhaps to say from our point of view, at least, that it is the strongest link which has been presented to explain some of the factors that have been left for the word "idiopathic" to cover. If Dr. Lennox only mentioned the work they are doing in Boston, it is because some of it has been presented elsewhere and some here, but the culmination of the work of Dr. Lennox, Dr. Forbes, Dr. Wolff and Dr. Cobb, has undoubtedly solved a problem, which not only applies to epilepsy, but applies to a great many other conditions which are just beginning to be realized in the form of brain diseases of various characters.

Certainly there is a practical application of this phenomena in the post-operative or post-traumatic treatment of certain conditions.

Here, in a brief way, some of the physiological truths that we have sought have been presented. It is certainly a presentation which is well worth careful study.



CLINICAL PHENOMENA ASSOCIATED WITH DEPRESSIONS, ANXIETIES AND OTHER AFFECTIVE OR MOOD DISORDERS.*

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"For this," he said, "is the error of our day in the treatment of the human body, that physicians separate the soul from the body." (Dialogues of Plato. I: 11-13.)

The prevalent concept of disease, since the discoveries of Pasteur, has been that of destructive invasion of the body by some noxious organism or virus. Although this concept has brought relief to countless multitudes, it has failed, in a measure, to account for some of the more serious invasions from within that are implied in the general term, "human constitution," which, relatively forgotten for more than half a century, is being subjected again to critical analysis. Certainly not the least part of the constitution of man is that part variously spoken of as "personality," "psychological panel," "character," and its comprehensive relationship to other aspects of the whole person. Chronic emotional states of various kinds, but especially those giving rise to distress, pain, and misery, form a variable but definite part of the personality. Such pathologic feelings and those clinical phenomena (classified to some extent according to the bodily system apparently the locus of distress) which are associated with them, are the basis of this study. The excuse for adding one more paper to the long list of those dealing with emotional disorders is the possibility that a group of milder cases might reveal new and interesting clinical phenomena which could be regarded as facts that would tend to clarify some of the bewilderment that exists over those diseases in which symptoms are not readily associated with gross lesions.

The trend of a patient's thoughts or feelings is as much a part of him as blood, urine, heat production, or metabolism, and should receive no less consideration in the diagnosis of disability or disease. Every skilled surgeon or clinician makes some observations regard-

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

ing these in the course of his examination if he treats the patient as a patient, rather than merely a skin filled with individual organs. An equally important fact regarding distressing emotional disturbances is their tendency to come to certain persons without adequate external provoking circumstances (adequate, that is, by the usual standards of society). They may appear "out of the blue sky," and represent an endogenous factor, the etiology of which is one of the obscurities of life. Insidious changes of the affects or feelings are sometimes difficult to understand or describe, for various reasons. In the first place, the vocabulary of emotional life is grossly inadequate. This fact alone often forces the patient to express vaguely or mislocalize his distress. In the second place, the patient's experience with his feelings is usually meager or taken for granted until some of them puzzle or annoy him so much that a violent search for their causes is instituted. In this search, he may mislead both himself and his physician unless the latter knows the clinical significance of emotional disturbances. Third, but not least, human beings are so complex that there are many individual ways (partial personality reactions) of expressing similar emotional states. The following examples, from many that might be selected, emphasize this point. Depression, sadness, melancholia, may be expressed in religious terms as "forsaken by the Lord"; in economic terms as "about to lose all I have and go bankrupt"; in social terms as "lonesome and my friends have gone back on me"; in somatic terms as "down-hearted" or "disgusted," "discouraged"; in occupational terms as "too weak and miserable to work"; in sensory terms as "no joy or zest in life"; in personal contrasting terms as "I am no good any more; a change has come over me"; in moral terms as "sinful" or "guilty"; in philosophic terms as "the world is going to the bad." In this age, with such diversified forms of dissemination of knowledge, the patient may, by means of newspapers, hearsay, or radio, develop a conception of disease often varying much from the truth. He may grope to express his feelings in medical terms, as, "I felt so badly I thought I must have some very bad disease." To a select few there may be still other ways of expressing the same thing. Unusual combinations of the foregoing may be most puzzling, especially if the patient is afflicted with one or two organic diseases or physiopathies which require disentanglement from the more general cries of distress.

TABLE I.
SUBJECTIVE SENSORY DISTURBANCES.

Case	Age, sex	Sense disturbed	Mood, emotion, affect	Sleep †	Fatigue †	Loss or gain of weight, pounds	Additional data
1	28 M	Smell	Despondent, ashamed, ideas of filth....	- 1	+ 1	0	None.
2	51 F	Pain in eyes.....	Fear of blindness; depression.....	- 1	+ 1	- 25	Low blood pressure.
3	42 M	Vision (noose and hand hallucination).	Acute, severe, anxious, miserable, dread in attacks.	- 2	+ 2	0	None.
4 *	42 M	Vestibular	Unhappy; impending calamity; dread of future (recurring).	- 1	0	+ 20	Prostatitis graded 3 Nonne positive.
5 *	54 M	Pain, severe ache in legs and arms.	Despondent, restless, loss of interest...	- 2	?	- 27	Blood pressure 160/80.
6 *	53 F	Burning, severe, transitory patches, "ugly taste."	Depressed; feared the worst.....	- 1	+ 2	- 17	Blood sugar elevated.
7 *	47 M	Coldness, unbearable, of legs.	Melancholy; epigastric distress (recurring in winter).	- 2	+ 1	?	Blood pressure 168/96.
8	28 M	All senses dulled.....	Low-spirited; despairing	- 1	+ 1	- 10	Blood pressure 140/100.

* Cases reported in text. † Graded from 1 (slight) to 4 (profound).

SUBJECTIVE SENSORY DISTURBANCES.

A careful study of patients in pathologic emotional states would possibly demonstrate a subjective disturbance of every special sense and many of the vaguer and more general senses. Paresthesia, tingling, pressure, irritation, itching, burning, coldness, numbness, and even pain, may be encountered. Fogginess of vision, visual and

TABLE 2.
SPECIAL AND GENERAL SENSE DISTURBANCES IN 112 CASES OF
AFFECTIVE DISORDERS.

	Cases
Head distress	19
Epigastric distress	17
Abdominal distress (not epigastric).....	10
Muscle ache	10
Joint ache	10
Genital distress	8
Paresthesias	8
Mouth discomfort	7
Visual disturbances	5
Precordial distress	4
Pain	4
Vestibular disturbances	3
Hearing disturbances	3
Hunger	3
Strange feelings (undescribed).....	2
Burning	2
Smell disturbances	2
Chest distress (not cardiac).....	2
Sex urge	2
Sex decline (specifically mentioned).....	2
Taste disturbance	1
Rectal distress	1
Coldness	1

auditory illusions, and hallucinations may be noted. Such sensory experiences may occupy most of the patient's attention and tend to obscure far-reaching personality distresses of an emotional nature, unless they are especially sought. Sensory impressions fluctuate somewhat with the well-being of the patient as a whole. Tables 1 and 2 and Cases 4, 5, 6 and 7 illustrate only a few of the many subjective sensory disturbances which require distinction from the ever possible more destructive organic lesions.

CASE 4.—A married man, aged 42, a civil engineer, came to The Mayo Clinic, complaining of unusual attacks occurring since he was 24. His father was a capable but nervous and excitable man. His mother showed some definite psychopathic tendencies. A brother was addicted to the use of alcohol. The patient had always been energetic, ambitious and restless. Occasionally, he went on alcoholic sprees. At the age of 24, for eight months, he had a feeling that the floor was uneven and that he might fall. He expected to faint, but never did so; he no longer experienced joy and happiness out of life; he slept poorly, but did not lose weight. The onset and recovery were rather sudden. At 37, for a year, he had a similar illness, except that the feelings referred to the vestibular sense were more violent and acute. At 39, for three months, he had a similar illness, and at 40 it recurred and had remained. Associated with each attack was a feeling of desire to weep, although he rarely wept. He had a persistent feeling that life was not worth while, and of impending calamity much of the time. His appetite had not been impaired and he had gained 20 pounds in two years. Though he had had some failures in business, he was usually successful when able to work. The general medical and neurologic examinations, including the Bárány tests, were negative.

Summary.—The patient in this case was a man who had attacks of change of mood associated with marked disturbance of the sense of equilibrium. Are they vestibular hallucinations?

CASE 5.—A single man, aged 54, a farmer, came to The Mayo Clinic complaining of aching pain in the forearm and legs, of six months' duration. Data of significance were not elicited in the family history. He had always been a quiet, shy, serious person. At the onset, he had "la grippe" for a week or two with little or no fever, but with aching and general malaise. He did not go to bed, but stood about and lost interest in everything. His legs felt numb and tingled below the knees. After several weeks, severe aching in the legs and forearms appeared, which kept him awake much of the night, and caused him to walk the floor, groan, moan and rub his arms and legs. He lost appetite and with it 27 pounds in weight. He seemed downcast and worried, although he never complained of anything except poorly localized pain in the arms and legs. He seemed agitated and depressed. General examination (except for loss of weight) and neurologic examination were objectively negative. Objective evidence of neuritis was not present.

Summary.—The patient in this case was a man, aged 54, who, after a mild illness, had localized severe aching pain in the legs and arms (but without objective sign of disease). He seemed agitated and depressed.

CASE 6.—A married woman, aged 53, a teacher, came to the clinic complaining of areas of rather severe burning over arms, chest, shoulders and abdomen, of about two years' duration. Significant data were not elicited in the family history. She had never been very energetic but had always been

fairly cheerful. She had gone through the menopause at 43. She had always been well and happy except for some aching in various parts of the body. The onset was insidious. The burning areas varied in size from "a few square inches to twice the size of a hand." They were confined chiefly to the upper half of the body. Burning would persist for from 10 to 15 minutes in one area before shifting to another. It came night or day, was not confined to a nerve or to blood vessel distribution, and local changes could not be seen during the attacks, which were most distressing. She had been told that the gallbladder had poisoned her system. She became sleepless, low-spirited, and feared the worst. She complained also of a bitter taste in her mouth. General examination revealed blood sugar 0.13 per cent, slight fibrosis of the retinal arteries, achlorhydria, and negative roentgenograms of the stomach and gallbladder. She had lost 17 pounds. One blood pressure reading was normal. The Wassermann reaction was negative. Neurologic examination was objectively negative.

Summary.—A married woman, aged 53, felt areas of intense burning over the upper part of the body, and had a disagreeable taste in the mouth. She experienced depression, insomnia and fear of impending calamity.

CASE 7.—A married man, aged 47, a Polish laborer, came to The Mayo Clinic, complaining of almost unbearable coldness of the lower extremities, which came on in attacks each winter and spring for a number of years. His mother had had headaches. He had always been of a serious makeup. When he was a young man he suffered almost unbearable cold of the toes each winter. The coldness gradually crept up the legs to the middle of the thighs by spring and then receded; he usually felt well in the summer and autumn. Associated with this was insomnia, epigastric distress (for which a negative exploration for duodenal ulcer had been carried out), and a melancholy feeling. Because the last attack had also included numbness of feet and hands and had remained longer than usual, he sought help. The bowels were usually constipated in these attacks, but might be loose almost to the point of diarrhea when he was well. The general examination, except systolic blood pressure 160 and diastolic 96, was essentially negative. The neurologic examination was objectively negative. The blood vessels of the legs were patent and the temperature of the extremities did not seem unusual.

Summary.—A man had had recurring attacks of disagreeable coldness of the lower extremities each winter, associated with epigastric distress, constipation, insomnia and melancholy feelings.

DISTURBANCES REFERRED TO THE GASTRO-INTESTINAL TRACT.

"Disgust," "distasteful," "sour," "down-in-the-mouth," are emotional expressions in which the gastro-intestinal tract has a part in a personality distress. Cannon has ably demonstrated the

effects of fear and rage in inhibiting peristalsis in animals. Farr, Lueders and Bond were of the opinion that states of elation and euphoria increase the quantity of gastric secretion, while depressive states tend to reduce it. They were not able to demonstrate changes in the acidity of the secretions with varying moods. Henry's studies led him to believe that depressive moods reduce the tone and motility of the gastro-intestinal tract, while states of elation and euphoria, well-being, and happiness increased these functions accordingly. He was fortunate enough to have examined the same patient in pathologic depression and elation, and the changes in the motility and tone of the tract in these two states were marked. He drew the following conclusions from his studies:

"I might say that it seems evident that certain definite physiological visceral changes accompany and are intimately associated with different types of psychoses and furthermore, that it seems probable that the so-called normal variations and even some conditions believed to be pathologic may be due, in part, to mood variations or other tendencies toward psychotic states in the normal individual," and "persons who are intensely depressed or perplexed may retain food residue in the body for over two weeks."

It is a strange fact that patients so sad that they cannot weep may secrete from the bowel or stomach large quantities of mucus. A case reported in this series (Case 15) serves to illustrate gastric acidity and secretory variations in a patient who suffered from hypochondriac depression and recurring peptic ulcers. In an emotionally distressed person with complaints referred to the gastro-intestinal tract, and without discoverable anatomic lesions, it is difficult to know which is cause and which effect. From the biologic standpoint, the whole person has doubtless been equipped phylogenetically to reflect distress much longer than has the gastro-intestinal tract as an isolated structure. Careful analysis of the sequence of symptoms of the personality as a whole will reveal that emotional pain often antedates the distress more or less localized in the gastro-intestinal tract. The dictum of "vicious circle," so much used in such cases, needs more critical clinical analysis.

Draper has attempted to learn if the personality bears any relation to peptic ulcer and disease of the gallbladder. He doubtless takes the legitimate stand that such diseases, although due to infections or abnormal physiology, will not be fully understood until

TABLE 3.
GASTRO-INTESTINAL DISTURBANCES.

Case	Age, sex	Disorder	Mood, emotion, affect, distress	Sleep†	Fatigue†	Loss or gain of weight, pounds	Additional data
9	63 M	Anorexia, profound, like anorexia nervosa.	Depressed, listless (recurring).....	- 1	+ 3	- 43	Carcinoma of sigmoid.
10	24 *	Hunger, excessive	Pessimistic, depressed, sluggish (recurring).	+ 2	+ 2	0	None.
11	53 M	"Teeth and mouth miserable"	Miserable, restless	- 3	0	0	Myocardial degeneration, arteriosclerosis, blood pressure 214/110.
12	31 M	Pylorospasm?	Indescribable misery, loss of interest...	- 2	+ 3	- 16	None.
13	34 M	Gas distress, much mucus in stools.	Anxiety, feeling of suffocation.....	- 1	+ 3	- 10	None.
14	58 *	Gnawing epigastric distress immediately to two hours after meals.	Pressure headache, despondent, weeping (recurring).	- 2	+ 3	- 10	Duodenal ulcer?
15	39 M	Epigastric distress immediately to two hours after meals.	Worry and apprehension, depression "stomach rotting" (recurring)	- 2	+ 1	- 25	Duodenal ulcer (recurring); variations of acidity.
16	59 M	Anorexia; nausea; vomiting; jaundiced appearance.	Despondent, worried (recurring).....	- 1	+ 2	- 22	Achlorhydria; gallbladder disease?
17	38 M	Migraine syndrome	Depression (recurring)	0	+ 2	- 20	Constipation.
18	33 F	Diarrhea	Discouraged, restless, sad; lonesome (recurring).	- 1	+ 3	0	Temperature 99°.
19	58 F	Mucus, casts of bowel.....	Depressed; impending calamity; fear of carcinoma.	- 2	+ 3	- 40	
20	51 *	Constipation, extreme epigastric distress after meals.	Extremely despondent; worries.....	- 2	+ 2	- 10	Duodenal ulcer.
21	49 F	Rectal and vaginal pain.....	Run down, sad, low-spirited.....	- 2	+ 2	?	Blood pressure 100/55.

* Cases reported in text.

† Graded from 1 (slight) to 4 (profound).

it can be determined why the infection or altered physiology affects some persons and not others.

The nervous dyspepsias or gastric neuroses of gastro-enterologists, if studied from the standpoint of mere search for lesions, may be most disappointing. On the other hand, they may be most fascinating if studied from the standpoint of altered physiology in which moods, emotions, and affects, often as elusive as any bacteria or poisons, play a part which medical science has only begun to

TABLE 4.

DISORDERS OF THE GASTRO-INTESTINAL TRACT IN 112 CASES OF
AFFECTIVE DISORDERS.

	Cases
Epigastric distress	17
Abdominal distress (not epigastric)	10
Anorexia	10
Mouth discomfort	7
Vomiting	7
Duodenal ulcer	5
Gastric hyperacidity	5
Nausea	5
Constipation	5
Gastric hypersecretion	4
Hunger	3
Achlorhydria	3
Mucus in stool	2
Rectal distress	1
Gallbladder disease	1
Pylorospasm?	1
Hypo-acidity	1
Diarrhea	1
Carcinoma of sigmoid	1

understand. This may be briefly illustrated by a husband and wife seen recently, who, prosperous and happy on one day, were faced with possible economic ruin on the day following. The husband had chills, insomnia, and marked fatigue. The wife vomited profusely and the gastro-intestinal tract would not tolerate any food until the threatened failure subsided. Both felt restless for weeks after the incident.

Clinicians who interest themselves in only a few aspects of a sick person, and often only the mechanical ones, must, of necessity, fail to see many of the subtle ways in which the gastro-intestinal and other somatic systems reflect the inner life. Tables 3 and 4

† Graded from 1 (slight) to 4 (profound).

* Cases reported in text.

and Cases 10, 12, 14, 15, 16, 19 and 20 give only a few of the clinical phenomena referred to the gastro-intestinal system, and associated with emotional pains and distresses.

CASE 10.—A man, aged 24, a factory worker, came to The Mayo Clinic, complaining of periodic attacks of sleepiness of 18 months' duration. Significant data were not elicited in the family history. He had always been quiet, serious, and well. He had had measles, mumps, chickenpox, pertussis and influenza, with apparently excellent recovery. In June, 1926, he experienced a gradual dozey, sleepy attack, which lasted about nine days. He made mistakes in his work and had to give it up. He slept 18 hours of the 24, but not so heavily that he could not be aroused. He got up for meals and ate heartily to satisfy his hunger. He felt somewhat depressed, pessimistic and lonesome. He did some daydreaming, which was very vivid. Thought processes were not accelerated or slowed. He felt sexually stimulated. This attack was suddenly replaced by a three-day period of sleeplessness, optimism and restlessness, in which he talked more than usual, whistled, sang and ate normally. In this phase, thought processes seemed normal and the vivid daydreaming was not present. He became normal and remained so for five weeks, at which time the attack recurred; it has recurred every five weeks since. The general and neurologic examinations were objectively negative except for some dental and tonsillar sepsis.

Summary.—A young man experienced an unusual mood disturbance for 18 months; it recurred each five weeks and was characterized by about nine days of sleepiness, sluggishness, increased hunger and ingestion of food, depression and vivid daydreaming, replaced suddenly by three days of optimism, restlessness, complete sleeplessness, and normal appetite. Examinations in the normal interval were essentially negative.

CASE 12.—A married man, aged 31, a secretary, came to The Mayo Clinic, complaining of nervous restlessness and abdominal cramps of ten years' duration. He stated that his mother was nervous and his father had neuritis. He was an only child. He had been very ambitious, energetic, restless and serious. For many years he had gradually grown more restless, but for four months he had felt so miserable that he could not work. He complained of excessive fatigue, insomnia and loss of interest. He said he was not sad or melancholy but was much concerned about his inability to work. For ten years he had had sudden attacks of sharp, severe, epigastric pains, at which times he became very nervous. He clenched his fists and made all his muscles tense. The pain lasted from two to three hours. He usually vomited. In a few such attacks, he stated that he talked rapidly on any subject that came into his mind. The general medical examination, including roentgenograms of stomach and gallbladder, was negative. He had lost 16 pounds. It was felt

that he probably had transient pylorospasm. The neurologic examination was objectively negative. He manifested anxiety, depression and restless impulsiveness. His intellectual resources were intact.

Summary.—An energetic, active young man, with increasing “nervousness” for 10 years, suffered two or three attacks of severe abdominal pain each year, thought possibly to be pylorospasm. In the course of four months, he became unable to work because of lack of interest and ambition, restlessness and an indescribable and unlocalized misery. He became excessively fatigued and sleepless. He stated that despondency, sadness and depression did not describe his misery.

CASE 14.—A married man, aged 58, a salesman, came to The Mayo Clinic, complaining of attacks of gnawing and gas in the epigastric region, of 11 years' duration. The family history was not significant. He had always been very energetic, and serious but optimistic, until the onset of the present illness. The attacks lasted from three days to seven months, and came on two or three times a year. The onset was usually insidious, but recovery sudden. The epigastric distress formerly was a gnawing sensation which was accompanied by gas, and came on two or three hours after meals. More recently the distress came more directly after meals. He said his stomach felt as if food never moved out of it, but fermented. Pressure headache was always present, and varied in intensity with the epigastric distress. His appetite in attacks was usually good but food flavor was less and he lost weight. Fatigue was common. He slept poorly at the onset of the attacks and also felt somewhat despondent and discouraged, and wept a little. Thought was perceptibly slowed. In attacks, his complexion was florid; out of attacks it was pale. Paresthesia of the legs was present and sexual desire absent in attacks. Between attacks he was successful, energetic and felt well. Because of the fact that he had passed a few tarry stools a month or two earlier, he was hospitalized for study. Repeated roentgenograms of the stomach and repeated examinations of the stools for occult blood were negative. Roentgenograms of the gallbladder were negative. After some deliberation, he explained the black stools as possibly due to blueberry pie he had eaten. The prostate was infected. He had lost 10 pounds. The neurologic examination was objectively negative, but the depressed appearance of the patient was obvious.

Summary.—An energetic, successful man of 58, had had for 11 years recurring attacks of epigastric gnawing and gas, at first two to three hours after meals, but more recently directly after meals. Attacks occurred two or three times a year, and varied in length from a few days to seven months. They were accompanied by insomnia, despondency, lonesomeness, fatigue and pressure in the head. Between attacks, he was very energetic and successful,

and felt well. All examinations of the gastro-intestinal tract were objectively negative.

CASE 15.—A married man, aged 39, a laborer, came to The Mayo Clinic first in June, 1921, complaining of epigastric distress caused by gas, one to two hours after meals, of six weeks' duration. He had always been serious, plodding, and, apparently, complaining. In 1908, he had had a similar attack, lasting six months. In the present attack, he obtained relief at times by taking soda and by eating. Some mucus was found in the stools. He had lost 15 pounds. Occasionally he felt some numbness of the legs. A duodenal ulcer was found by roentgenograms. The consulting physicians believed he was neurotic. A fistula of the anus was repaired, and medical treatment advised for the ulcer. He was seen at frequent intervals. The following are short excerpts concerning the case:

October, 1921.—The Sippy regimen had not helped the neurotic components. He had not gained weight.

May, 1922.—He was nervous and apprehensive. Much abdominal gas and epigastric burning, not particularly related to meals, were present. Constipation and diarrhea alternated. Slime was passed. The ulcer was excised, and Finney pyloroplasty and appendectomy performed.

August 1922.—Vague epigastric distress was present. Gas pushed against the heart. He did not gain weight. There was hypersecretion of gastric juice (250 c. c.). Roentgenograms showed deformity of the duodenal cap.

January, 1923.—The region of the stomach was numb. He did some work in December, 1922. He was losing weight. There was hypersecretion of gastric juice which ranged from normal to hyperacidity. Roentgenograms showed deformity of the duodenal cap.

April, 1923.—Sour fluid was regurgitated after meals. Because of epigastric fullness he had learned to wash his stomach with a tube. Roentgenograms still showed deformity of the duodenal cap.

July, 1923.—Epigastric fullness and bloating were present three to four days every two to three weeks. He was losing weight. Roentgenograms showed deformity of the duodenal cap.

December, 1923.—Much vomiting accompanied influenza. He gained some weight. He was introspective. Roentgenogram showed deformity of the duodenal cap.

June, 1924.—Epigastric burning was continuous. Roentgenogram showed deformity of the duodenal cap.

August, 1924.—Neurologic examination was objectively negative.

October, 1924.—He was well and working until February, 1925.

April, 1925.—Much gas, constipation, numbness of the abdomen and loss of weight were noted. Roentgenogram showed recurring ulcer of duodenum.

May, 1925.—Hydrochloric acid 72, total acidity 94. Gastroenterostomy performed.

July, 1925.—Achlorhydria was present (may have been due to gastroenterostomy). Because of his inability to work, financial and domestic worries became acute.

August, 1926.—He had not gained weight. He complained of poorly localized misery, but the gastric region was the seat of most of it. Hydrochloric acid was four. He said there was "slime" in the stools, that the stomach and bowels were clogged and that the stomach would "rot out." He was sad and depressed and was entirely unable to care for himself. He had no real symptoms of ulcer and the mechanics of the stomach, after careful study, were reported to be satisfactory. A psychiatric diagnosis of hypochondriacal depression was made. He had lost 25 pounds and was placed in a psychopathic hospital where he gained much weight, and was able to work well but always grudgingly.

Summary.—A man, aged 39, with a duodenal ulcer, had a psychiatric disorder, characterized by ill-defined and inconsistently localized epigastric distress, and personality distress. Dietary treatment of the ulcer was unsuccessful and it was excised. The nervous symptoms persisted with distress in the epigastric region, not usually characteristic of ulcer. Gastric secretory variations, high acids, much secretion, and later low acids were noted. Roentgenograms showed recurrence of the ulcer, three years after the first operation. Gastro-enterostomy was performed. The nervous symptoms persisted and prevented work except for a few short periods. He was apprehensive and the stomach felt numb and heavy and would not tolerate much food without distress. Domestic and financial trouble resulted from long disability without earning power. He became sad, depressed, and blamed his stomach for his trouble; he felt it was "rotting out," or "clogging up." Hypochondriasis was profound at the age of 38, five years after onset. He was then put into a psychopathic hospital because he had become wholly unable to care for himself. This case illustrates the complications and diagnostic problems associated with an insidious psychiatric disorder and an organic lesion.

CASE 16.—A married man, aged 59, a manufacturer, came to The Mayo Clinic, complaining of nervousness of about eight months' duration. A brother had committed suicide. A sister had been in an asylum. The patient had always been very energetic and cheerful. The present illness began with a "loggy" feeling, malaise, anorexia, nausea and painless vomiting in the morning. There was some distress from gas. He became depressed and worried, and thought of suicide. Sleep did not rest him, although he seemed to sleep well. He lost weight rapidly. He became very sallow and yellow, and jaundice was suspected. Stools were pale on some occasions. Hands and feet tingled somewhat. He had had similar but shorter attacks at the age of 44, 53 and 55, from which he recovered completely. Except for these attacks, he had always been well and happy. General examination revealed

achlorhydria, loss of 22 pounds, negative roentgenograms of the stomach and esophagus, a suggestion of cholecystic disease, and moderate infection of the prostate. The neurologic examination was objectively negative. Evidences of combined degeneration were not present. The patient was obviously depressed. His intellectual resources were unimpaired.

Summary.—A man, aged 59, a manufacturer, suffered from recurring acute depression, which began by a feeling of malaise and anorexia, nausea and vomiting in the morning. Marked change of complexion in the attacks had suggested jaundice. There was a suggestion of cholecystic disease and infection of the prostate. He had lost 22 pounds.

CASE 19.—A married woman, aged 58, consulted her physician because of an illness which had puzzled her for a year. The family history was not significant. She had always been serious and energetic. Her illness began with a vague abdominal distress. She was troubled with much gas, and for this reason and because of slight anorexia, she limited her diet very much. She lost more than 40 pounds, slept poorly, could not keep warm, did not have energy for work, and lost interest. She became depressed, weeping at times. She had a feeling of impending calamity, and felt that she might have cancer. She complained of constipation, although at times her bowels moved freely and contained large quantities of mucus, even mucous casts of the bowel. She recovered entirely in about a year. The general examination, except for great loss of weight, was essentially negative. The chronic distress, anxiety and depression were obvious. A diagnosis of mucous colitis and depression was made.

Summary.—A woman of 58, always energetic and serious, had abdominal distress, chiefly from gas, lost much weight, had a fear of the worst, and passed large quantities of mucus. She recovered.

CASE 20.—A married man, aged 49, a printer, came to The Mayo Clinic for treatment of cranial nerve palsies, the result of an automobile accident two years before. Nothing of significance was elicited in the family history. He had been energetic but serious. He had always had a great deal of domestic worry, and felt that he had been mistreated. He changed jobs frequently, but worked hard. He had insomnia. For many years he had had an epigastric gnawing distress, which came on two or three hours after meals and was relieved by soda or food. The Sippy diet, in 1916, relieved him greatly. He had been growing constipated. Six months before coming to the clinic, an acute disappointment made him become very despondent, and he asked to be cared for in a hospital. He was taken to a psychopathic hospital, where, in addition to his profound depression, he expressed some ideas of persecution (with some justification), and thought and action were markedly retarded. At the height of the depression, he was inordinately constipated, and rarely had a bowel movement without enema. Within a short time, he recovered

from his depression, and to his surprise, from his constipation also. He complained little, if any, of his stomach, but had some backache. Roentgenograms disclosed duodenal ulcer and some hypertrophic arthritis of the spine. Neurologic examination showed partial left sixth and seventh cranial nerve palsy. He seemed to have recovered from the depression fairly well and gave a vivid account of it.

Summary.—An energetic, serious man of 49, with a duodenal ulcer syndrome, much worry and domestic trouble, after a disappointment became acutely depressed, during which he was profoundly constipated. The constipation disappeared with the depression.

DISTURBANCES REFERRED TO THE CARDIAC SYSTEM.

Depressed or anxious patients are occasionally seen who refer much somatic distress to the precordium. Because of prevailing concepts of heart disease, any sensation in the region of the heart felt by a sensitive person may arouse anxiety. The heart may beat rapidly, slowly, irregularly, or violently, though the musculature and intrinsic mechanism may be sound. "Down-hearted," "broken-hearted," "discouraged," "heavy at heart," "disheartened," are all terms of emotion that tend to express *in toto* the distress of such patients. Such a constellation of feelings is sometimes called cardiac neurosis. The apparent disturbance referred to the heart may overshadow the more profound and possibly fundamental personality distress, which, for reasons not always detectable, focuses on the cardiac region. Table 5 and Case 22 illustrate only a few of the many disturbances referred to the cardiac system of patients with pathologic moods.

CASE 22.—A married woman, aged 36, came with her physician and nurse to a heart specialist, because, for several months, she had had attacks of distress referred to the precordium on exertion. The family history was not significant. She had always been well, and considered herself a joyful, happy person. At the onset of the illness she had had some domestic worries, which affected her markedly, and she became very restless and depressed. She began to experience unbearable distress (not sharp pain) in the precordium on exertion, but was able to walk to a neighbor's house after the onset of such an attack. She slept poorly and fatigued easily. She was seen by her physician several times daily. Her condition did not improve, and she employed a nurse to be with her all of the time. Except for moderate obesity, the general examination, including electrocardiographic studies, was negative. The pulse rate was 90. Depression and anxiety were obvious.

TABLE 5.
DISORDERS REFERRED TO CARDIAC SYSTEM.

Case	Age, sex	Disorders	Mood, emotion, affect	Sleep†	Fatigue†	Loss of gain of weight, pounds	Additional data
22 *	36 F	Precordial discomfort	Depression, worry, anxiety.....	— 1	+ 2	0	Obesity.
23	44 M	Rapid heart; pulse 120.....	Depression; epigastric uneasiness.....	— 2	+ 3	— 10	None.
24 *	45 M	Slow heart; pulse 41-42.....	Profound depression; anxiety.....	— 4	+ 2	— 29	None positive. Fibrillary twitching of left leg; gastric hyperacidity, basal metabolic rate—29.

* Cases reported in text.

† Graded from 1 (slight) to 4 (profound).

Summary.—A married woman, aged 36, complained of unbearable precordial discomfort, with anxiety and depression, following domestic worries.

DISORDERS REFERRED TO THE RESPIRATORY SYSTEM.

The respiratory system offers a means of expressing emotions, by laughing, crying, sobbing, singing, sighing, groaning, in some spoken speech and in the absence of these. Unusual sensations felt in the chest, undue fatigue or exhaustibility, fever and loss of weight, all legitimately suggest the possibility of tuberculosis, still a dreaded malady. Symptoms and signs referred to the chest may so occupy the attention of the patient as to more or less conceal an underlying emotional distress of a profound nature. Table 6 and Case 25 illustrate only a few of the respiratory disorders associated with depressions and anxieties.⁹

CASE 25.—A married man, aged 42, a salesman, came for examination very anxious and depressed, and with asthma of two months' duration. He came of a family in which there was mental disease. He had always been energetic and extremely conscientious. He had a sense of humor, but was not spontaneously cheerful. At the age of 18, while in college, he had had an attack of depression with asthma, lasting about six months, and he went to a western climate for his health. He had been well until the onset of the present illness, which began two months previously with some worry over finances and an automobile accident. He became so sad and anxious that thoughts of suicide were frequent. After the onset of the depression, he had nocturnal asthmatic attacks nearly every night. A history of protein sensitization could not be elicited. He recovered in the course of six months.

The general and neurologic examinations were negative, except for loss of 15 pounds and tachycardia. Protein sensitization tests were not carried out.

Summary.—A very conscientious man, aged 42, from a family with mental disease, suffered from profound depression associated with asthma, lasting six to eight months, after financial worries. He had had a similar attack at the age of 18, lasting six months.

DISTURBANCES REFERRED TO THE GENITAL SYSTEM.

With profound mood disturbances, unusual clinical phenomena may be referred to the genital system. Dysmenorrhea, or amenorrhea may occur. Various aches and unpleasant sensations may be referred to the genitals. Shame and disgrace and other degrading emotions are often associated with unusual sensations or distress of

TABLE 6.
RESPIRATORY SYSTEM DISTURBANCES.

Case	Age, sex	Disorders	Mood, emotion, affect	Sleep†	Fatigue†	Loss of weight pounds	Additional data
25 *	42 M	Asthma	Depression, financial worry (recurring).	— 2	+ 2	— 5	Rapid heart.
26	39 M	Exhaustion (fear of tuberculosis).	Depression, acute anxiety (recurring) ..	— 2	+ 2	— 20	Blood pressure 104/70.
27	38 M	Fear of respiratory failure...	Depression, panic-like fear (recurring).	— 2,3	+ 3	— ?	None.
28	29 M	Cough (hoarseness)	Depression, impending calamity.....	— 2	+ 2	— 12	Mild inflammation of vocal cords.

* Case reported in text.

† Graded from 1 (slight) to 4 (profound)

the genital system. Table 7 and Case 29, among many examples that might be presented, are illustrative of clinical phenomena referred to the genital system and associated with pathologic moods.

CASE 29.—A married woman, aged 53, came to The Mayo Clinic late in 1927, complaining of nervousness and depression, and an inordinate desire for sexual intercourse of about a year's duration. Nothing was elicited in the family history except that a brother had experienced some kind of marked adaptive decline in the later years of life. She had always been hard-working, quiet, modest, and had reared a family of four children. She had had diabetes mellitus for more than 13 years, associated with vaginitis. She returned to the clinic from time to time after her first visit in 1914, to receive instruction and to control the diabetes. Menopause had occurred at 51. The present illness came as a surprise. Prior to its onset sex was a matter of family duty. With the onset of definite desire for intercourse, she became ashamed, depressed, weak, and slept poorly. She thought of suicide. When relieved of the vaginitis associated with the diabetes the sexual feelings were unchanged. The general examination revealed large quantities of sugar in the urine, and 0.230 per cent in the blood. She had mild diabetic retinitis. The neurologic examination was objectively negative, but her depression was obvious. Intellectual resources were intact.

Summary.—A married woman, aged 53, modest, quiet, hard-working, with diabetes mellitus for 13 years, became depressed, ashamed, and developed nymphomania at 52, a year after menopause. Relief of the vaginitis of diabetes mellitus did not relieve the nymphomania.

MISCELLANEOUS CLINICAL PHENOMENA ASSOCIATED WITH DEPRESSIONS, ANXIETIES, AND DISTRESSING EMOTIONAL STATES.

Besides the somatic systems mentioned, others may be affected. In the course of profound depression, the immunity of the body doubtless decreases and, at times, permits infections to invade the bladder, skin and other organs. Cases have been noted in which fever occurred during depression and in which trace of infection or tuberculosis could not be found. Mühl believes that the personalities of certain tuberculous women she studied may have a relationship to the presence or course of their disease. Weakness, loss of ambition, slowing of movements, easy fatigability, and even exhaustion, are common, and have doubtless been responsible for the terms "chronic nervous exhaustion" and "neurasthenia," not

TABLE 7.
DISORDERS REFERRED TO GENITAL SYSTEM.

Case	Age, sex	Disorder	Mood, emotion, affect	Sleep†	Fatigue†	Loss or gain of weight, pounds	Additional data
29 *	53 F	Nymphomania; vaginitis	Profound depression, shame.....	- 3	+ 2	0	Diabetes mellitus.
30	33 F	Amenorrhea	Depression, irritability	- 3	+ 1	- 36	Pulse 96.
31	51 M	Aching testes; nocturnal emissions.	Acute anxiety, attacks of depression....	- 2	+ 2	- 12	None.
32	36 M	Loss of sexual desire.....	Acute depression	- 3	+ 3	0	None.

* Cases reported in text.

† Graded from 1 (slight) to 4 (profound).*

infrequently used. These symptoms, if not explained by tuberculosis, Addison's disease, or an oncoming Parkinson syndrome, warrant a thorough neuropsychiatric examination.⁸ The basal metabolism may be markedly lowered at times or for much of the time in some depressed and anxious patients, especially in the morning when many of them feel worst.¹⁰ Marked fluctuations in blood pressure occur at times and high blood pressure may go *pari passu* with the emotional distress. Raphael found persistently high blood sugar in a depressed patient. Extreme loss of weight may suggest malignancy, and the fears of the patients themselves are often directed toward such possibilities. Gain in weight has occurred in some patients with a semi-hibernating type of depression. Occasionally, a patient is seen in whom hypertrophic arthritis, probably present for years without symptoms, becomes the site of much severe aching, stinging and burning, during an attack of depression. That other and sundry physiopathies may occur with distressing emotional states goes without saying. Sometimes simple inflammation, which in a normal healthy person passes away in a few days, will persist in a depressed patient for weeks. Apparently the vascular and defense mechanisms of such patients, like the personality, are "in a rut," and remain so for periods longer than normal.

Table 8 and Cases 35, 36, 24 and 40 are illustrative.

CASE 35.—A man aged 44, an engineer and salesman, came to The Mayo Clinic, complaining of fatigue and "boils" for more than a year. The patient's mother had always been a dominant person, and somewhat nervous. He had always been well, and was considered cheerful, energetic, and sociable. He belonged to many clubs and organizations. He stated, however, that he was not as courageous as he seemed, and felt that he had always been nervous and "high-strung." Prior to the onset of the present illness, he had had two short periods of a few months, when he felt rather run-down, but on recovery felt so well that he worked harder than usual at his business. About a year before coming to the clinic, he began to tire easily, felt restless and worried, lost much weight (20 pounds or more) and felt acutely depressed at times. He began to have furuncles and had Vincent's angina for a time. The mystery of his illness annoyed him greatly. The general examination, except for furuncle scars, psoriasis vulgaris and loss of weight, was negative. Neurologic examination was objectively negative, but depression and anxiety were obvious.

Summary.—A man aged 44, always energetic and "high-strung," became "run-down," anxious and depressed, during which time he developed furunculosis and Vincent's angina.

TABLE 8.
MISCELLANEOUS PHENOMENA.

Case	Age, sex	Disorder	Mood, emotion, affect	Sleep†	Fatigue†	Loss or gain of weight, pounds	Additional data
33	38 F	Cystitis	Depressed, sad, irritable.....	- 3	+ 3	- 20	Migraine, grand mal.
34	59 M	Arthritis; aches (back and hips).	Worried, afraid, depressed (recurring).	- 3	+ 1	- 9	Hypertrophic arthritis of lumbosacral spine.
35 *	44 M	Furuncles	Depressed, anxious	- 2	+ 2	- 20	Psoriasis vulgaris.
36 *	29 F	Fever 100	Depressed, anxious	- 2	+ 3	- 15	Migraine, achlorhydria.
37	53 M	Loss of weight 54 pounds....	Depressed, impending calamity (recurring).	- 3	+ 3	- 54	Blood pressure 170/115.
38	43 M	Gain in weight.....	Depressed, sluggish, hungry (recurring)	+ 2	+ 2	+ 5 to 25	None.
24 *	45 M	Basal metabolic rate - 29, - 25.	Profoundly depressed, anxious.....	- 4	+ 2	- 29	None positive; fibrillary twitches. Gastric hyperacidity. Bradycardia 41-42.
39	48 M	Diabetes mellitus glycosuria at times.	Sad, stuporous	- 3	+ 1	- 27	None.
40 *	63 F	Blood pressure 190/100.....	Agitated, depressed, stuporous.....	- 2	+ 2	- 20	Constipation and diarrhea.

* Cases reported in text.

† Graded from 1 (slight) to 4 (profound).

CASE 36.—A married woman, aged 29, a teacher, came to The Mayo Clinic, complaining of nervousness of several months' duration, which she felt to be due to goiter. Her maternal grandfather died during a psychosis. She had always been of a serious make-up. She had had tonsillitis each winter and migraine at times since the age of 15. She had an illness about eight months before coming to the clinic, characterized by sore throat, rhinitis, and slight fever. She stopped work six days after the onset, and was in bed four days. She was then able to work for two weeks, when she felt weak and had some precordial pain relieved by rest. Soon her stomach tolerated only little food, and tachycardia and "nervous chills" bothered her. Gradually she became worried; insomnia and depression developed. She received varying medical opinions. The temperature was 99 to 100° in the morning when she felt badly or after any nervous upset; it was usually subnormal in the evening.

Clinical examination revealed moderately infected tonsils, some enlargement of the thyroid gland, gastric anacidity, and a basal metabolic rate slightly above normal on several trials; this, however, became normal. The pulse rate was 96. Examination of the chest was entirely negative. Neurologic examination was objectively negative, but the patient seemed mildly depressed and anxious.

Summary.—A woman, aged 29, with gastric anacidity, and subject to migraine, after an acute (not severe) infection, became nervous, worried, anxious, sleepless and depressed, and had some somatic distress. She had a morning fever, when she felt worst, and had observed that undue worry caused fever.

CASE 24.—A married man, aged 45, a railroad workman, came to The Mayo Clinic complaining of weakness, insomnia and stomach trouble of five months' duration. The family history was not significant. He had always been energetic, but had been restless, and roved with the army. In 1915, he was said to have had concussion of the brain from a shell explosion while in the British Army in France. This disabled him for from two to three years. His left leg and back were injured at the same time. Members of his family had been sick and he had worried over debts and bills. The onset of his illness was marked by profound insomnia, weakness and gastric distress, "poor digestion." His legs became weak, and the muscles twitched. Numbness and tingling were noted in the arms. He felt hungry, but the stomach did not seem to tolerate food. He lost much weight and became very anxious, restless, and despondent. Gastric acidity was 60. The basal metabolic rate was — 25 and — 29 on two tests. He had bradycardia, with pulse rates of 41 and 42 beats a minute when he felt worst in the morning. Neurologic examination revealed some fibrillary twitchings in the muscles of the legs. The cerebrospinal fluid gave a positive Nonne reaction, but was otherwise negative. It was obvious that he was restless, anxious and profoundly depressed. He committed suicide a few weeks after examination.

Summary.—A man, aged 45, who had always been energetic and restless, received a concussion while in the army, and was disabled

for from two to three years. There had been much sickness in the family, which worried him greatly. He became anxious, depressed, sleepless, and had a low basal metabolic rate. Gastric distress, positive Nonne reaction of the spinal fluid, bradycardia and gastric hyperacidity were noted.

CASE 40.—A woman, aged 63, always somewhat dependent following the suicide of her husband after loss of all their property, became agitated, depressed, and self-accusatory. Later she became tense, rigid, mute, and stuporous. Suddenly, after more than a month of such behavior, there came a sudden period of relative normality, lasting a few hours, followed by discontent, depression, tension and stupor. Such cycles continued. In fairly normal intervals, the systolic blood pressure was 130 to 140 and the diastolic 80 to 90. In depressed periods, the systolic was 160 to 190 and the diastolic 100. Extreme blood pressure changes occurred within a few hours, paralleling the sudden changes of mood. Aside from blood pressure changes, loss of much weight, and tremor of the hands, the general examination was essentially negative.

Summary.—A woman, aged 63, with much financial and other worry, became agitated, depressed and stuporous, and recovered within a few hours, only to repeat the course. Blood pressure was high in the stuporous state and came to nearly normal in a lucid interval, lasting only a few hours.

CHANGE IN OUTLOOK ON LIFE.

To change from a happy, healthy, competent person, to one beset with fears, depression and other emotional distresses, in itself produces a marked change in the outlook on life. However, there are, besides these, the profound changes at times, which make us wonder why certain persons behave as they do. It may thus happen that a decision made during one affective state will be unsuitable and even incompatible with the emotional state to follow. Such patients are often kept in perpetual conflict. Many persons with milder personality afflictions of this kind get on poorly in the world, and are considered unstable. Such disturbances of personality offer some explanation of the emotional forces that determine, in a measure, choice of occupation, religion, or philosophy of life. Table 9 and Cases 41 and 44 are illustrative.

CASE 41.—A man, aged 35, came to The Mayo Clinic to receive advice regarding extreme changes in personality that had overcome him from time to time for 16 years. He claimed that his father and a sister resembled him.

TABLE 9.
PROFOUND CHANGES IN PERSONALITY.

Case	Age, sex	Disorder	Mood, emotion, affect	Sleep †	Fatigue †	Loss or gain of weight, pounds	Additional data
41 *	35 M	Student for priesthood; salesman.	Depressed, groggy, semi-stuporous; exalted, extreme energy (recurrent).	- 2 - 1	+ 2 0	? ?	None.
42	31 M	Charity chief interest; opposed to charity.	Depressed, tender-hearted; brazen (recurrent).	- 2 0	+ 2 0	0 0	None.
43	33 M	Penurious; spendthrift	Quiet, cautious, gloomy; expansive, active (recurrent).	0 - 2	+ 1 0	0 - 10	None.
44 *	63 M	Ugly disposition; pleasant . . .	Sad, mean, irritable; happy, cheerful (recurrent).	- 3 0	+ 2 0	- 30 0	Blood pressure 98/60.
45	40 M	Strong prohibitionist; drinking	Downcast, ashamed, remorseful; happy, energetic (recurrent).	- 2 + 1	+ 2 0	- 15 0	None.
46	42 M	Very religious; backsliding . .	Humble, meek, shamed; energetic, indulgent (recurrent).	- 2 - 1	+ 2 0	- 10 0	None.

* Cases reported in text.

† Graded from 1 (slight) to 4 (profound).

At the age of 16 he became imbued with the idea of studying theology and preparing for the priesthood. He was sluggish in thought and action, and gloomy. This personality reaction was replaced by the feelings which made of him a successful salesman, when he was energetic and restless, and used some alcohol to calm himself. Both personality reactions recurred (Fig. 1).

Summary.—A man, aged 32, underwent changes of mood with marked change in personality. In one mood, he felt the desire to go into the priesthood as his life work, and enrolled in a college to that end. In the other he was an energetic, moderately happy,

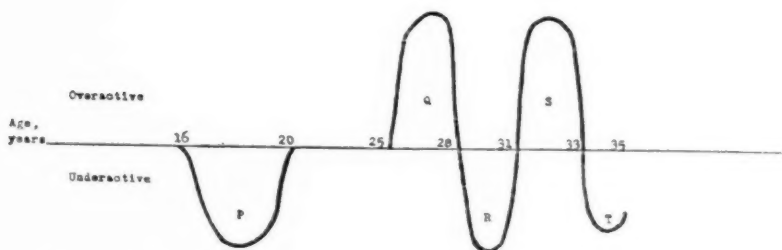


FIG. 1.—*P, R, T.*—Groggy, fatigued, sluggish, slow thinking, depressed, headache, sexually inactive. In periods *P* and *R* enrolled in schools preparatory for priesthood. Never able to pursue studies well for above reasons. In period *T* felt he had made a mistake by not continuing studies toward priesthood. In periods *R* and *T* remorse for life of periods *Q* and *S*.

Q, S.—Very restless, active, sociable, energetic, aggressive. Extremely successful salesman. Used alcohol to calm himself at times. Sexually very active.

active, successful salesman. These changes recurred. He was able to work in both states, but far more effectually in the latter.

CASE 44.—A married man, aged 63, a farmer, was brought to The Mayo Clinic by his son-in-law, who declared that the patient had had several attacks of mental trouble. There was some mental disease in his family. Aside from the attacks, he was well. He was a hard-working, serious man. At the ages of 18 and 56, he had had attacks of depression and pessimism lasting several months. The present attack began seven months previously. Each of the previous attacks was apparently initiated by some economic worry, accident or misfortune. The present attack came on when his hogs began to die of cholera. In each attack his temperament and disposition changed from that of a serious, quiet, gentle person, to an irascible, irritable, disgusted, mean, pessimistic, fault-finding person, who said ugly and sarcastic things about his best friends and the members of his family. He even threatened them with violence and attempted suicide twice. He slept poorly. He had some epigastric distress. He was very sour and despondent. He had lost much weight; his examination was essentially negative.

Summary.—A man, aged 63, was in the third attack of depression. He had changed from a quiet, gentle, serious person, to an ugly, mean, sarcastic, irritable, threatening person in the depressions.

CONCLUSIONS.

Normal health, joy and happiness, come from satisfying experiences with environment. Grief is associated with thwarting and unpleasant events. It is a prevalent concept that emotions result from a response to some stimulus or external provoking circumstance, and that catastrophe and misfortune are necessary to induce distressing emotions. There are persons in whom sadness, anxiety, depression, elation and feelings of extreme well-being seem to be almost entirely of endogenous origin. Such a person once beset by a distressing emotional state, and finding no exogenous cause for it, reacts to it in various ways, among which is a vigorous and ceaseless subjective search for its cause. He may search his past for transgressions. If he has somatic distresses, which are frequently associated with anxiety and depression, he may solicit the services of a general practitioner of medicine to hunt for a diseased organ. If an organic lesion is found, it may prove disappointing to the patient and physician to expect relief too soon from the mere treatment of the lesion. If an organic lesion is not found, it is equally disappointing to the patient to be told that his trouble is imaginary, or that he has nothing wrong with him. Depending on the locus of the most vigorous complaints, diagnoses such as nervous dyspepsia, gastric neurosis, cardiac neurosis, and sexual neurosis may be made. If, because of such diagnoses, all therapeutic efforts are directed toward supposedly diseased organs, the sorely miserable personality as a whole may continue to struggle and search for relief far and wide, in and out of the medical profession.

The distress of the personality as a whole, while showering many complaints on some part of the body, varies greatly from one person to another, and may be expressed in unusual terms, out of the inherent tendencies and life experience of the patient. Abnormal physiology (probably part of the emotional distress), further tends to disrupt the well-being and functioning capacity of the patient as a whole. Insidious chemical and immunologic changes associated

with anxiety and depression, doubtless favor metabolic disease, as well as infectious invasions.*

The dichotomy of life into mind and body, observed by Plato, has retarded our knowledge of the biologic reactions of man. Thoughts and feelings are as much a product of a patient as the gastric secretions or the pulse rate, and should not be studied in a detached fashion. The study by internists and psychiatrists of the intimate clinical course of patients emotionally sick, should throw much needed light on the distresses of persons so discouragingly free from the kind of lesions that are amenable to surgery or medicine, but which, in many cases, pass away spontaneously in the course of psychotherapy and the readjustment of life. To explain all the abnormal feelings of patients by organic lesions would be as futile as the hope of explaining the migratory tendency of birds from information obtained by dissecting their wings.

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* This must be partly what the late Sir James McKenzie had in mind by establishing the St. Andrews Institute for Clinical Research.

DISCUSSION

DR. G. T. HARDING., JR. (Columbus, Ohio).—These cases studied by Dr. Ziegler, and reported so creditably, are like many of those treated in private institutions, medical cases with dominant nervous symptoms, showing more accentuated disturbance of feeling and self-control than of reason and judgment. The medical man with psychiatric training sees in such mood disorders signs and symptoms similar to those more elaborated and complex manifestations characterizing well marked psychoses. The understanding of mania and depression enables one to appreciate the significance and nature of the symptoms of the milder affective disorders; and if our medical and surgical brethren were taught to recognize and understand them, more sick persons would receive the benefit of psychiatric observation, supervision, and care.

Raising the question of the possibility of hallucinations of vestibular origin is quite in keeping with the conception that mental diseases are the product of psychogenic factors, a constitutional predisposition and some physical debility, however indefinite as to nature, degree, or duration. A biochemical change influencing brain function could also affect the nature of the fluid of the vestibular canals or alter the otoliths. These latter are known to be formed after birth through some kind of metabolic process; they and the surrounding fluid must be subject to biochemic influence.

DR. WILLIAM MALAMUD (Foxborough, Mass.).—Dr. Felix Deutsch, of Vienna, and Dr. K. Hansen, of Heidelberg, have recently reported experiences very much allied to those of Dr. Ziegler. In some of these cases psychoanalytic treatment was undertaken and an amelioration of the somatic as well as psychic symptoms obtained. I wonder if the doctor has had any experience of this type, especially in regard to prevention of recurrences?

DR. GEORGE W. HENRY (White Plains, N. Y.).—I have had an opportunity in the last three or four years to examine several hundred medical and surgical patients at the New York Hospital. My experience has been quite similar to that of Dr. Ziegler. I think we have gone a little bit farther, however, in that we are not so anxious now about instructing the physicians and surgeons in regard to the symptoms of acute mania or any kind of mental disorder, but to aid them, or have them refer to us cases in which we can render aid, by pointing out to them the extent to which psychotic, psychoneurotic manifestations may complicate almost any kind of medical or surgical condition.

This has been accomplished, first, by obtaining permission to see patients and then quietly making and recording observations. Progress seems to be made more rapidly by allowing the internists and surgeons to draw their own conclusions as to the value of psychiatric consultations. This is especially true in those cases in which careful medical and surgical examinations do not reveal the source or nature of the illness. Such was the case with a patient whose history and symptoms suggested asthma and hyperthyroidism

but whose illness arose through the attempts of a psychopathic personality to make an adjustment to a difficult social-economic situation. The symptoms arose from drinking two quarts of coffee per day and abstinence from food in a desperate attempt to provide for the remainder of the family.

At least one-third of the patients referred can be successfully treated by psychiatric methods and most of the other patients referred can be definitely helped by psychiatric approach even though the treatment must be primarily medical or surgical.

PRESIDENT MEYER.—Is there any further discussion?

This study undoubtedly has considerable importance from the point of view of what has been agitated with regard to psychiatric education. I suppose what Dr. Williams, in his paper last year, and various others have had in mind has to cover just this sort of level of understanding and interpretation of the type of problems that come up to the internist, that come up to the rank and file of the physicians.

I should like to mention one thing, though, which I always emphasize in my introductory lecture in the psychobiology course: the not altogether infrequent difficulty at present is that the internists assume too readily that they are dealing with some psychopathological process, and then begin to smooth over and overlook quite unjustifiably things that occasionally result very disastrously through not being recognized in their proper internal medicine aspect.

A most tragic instance of that sort occurs to me: A patient was recommended to my particular attention for anxiety attacks which consisted very largely of her reactions to continual psychotherapeutic exhortation on the part of the internist. It made the patient feel that her very real sickness was being slighted. There was indeed a clear myocarditis; there was uremia; there were the eye symptoms, and also definite sources of infection which were unduly neglected. The anxiety psychosis, so-called, was a very definite reaction of remonstrance against misplaced psychotherapeutics, for the patient was absolutely convinced that the somatic condition was being neglected.

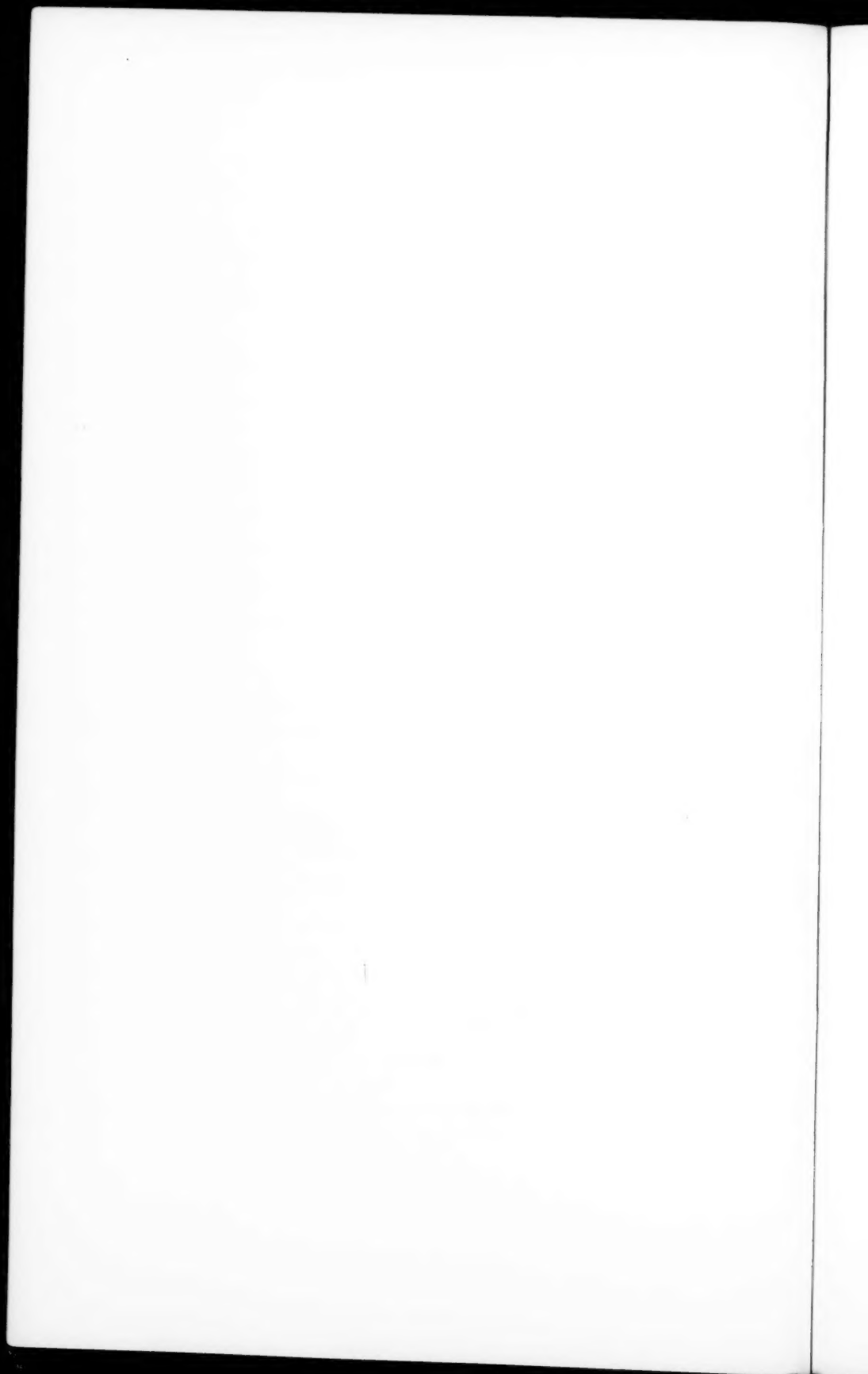
Is there any further discussion? If not, I should like to ask Dr. Ziegler to close.

DR. LLOYD H. ZIEGLER (Rochester, Minn.).—I quite agree with Dr. Harding that the type of thing I have presented is the kind of psychiatric practice one sees in private practice and outside of a psychopathic hospital. Of course, one sees very profound cases, but some of the milder cases present extremely interesting problems. I think we need to have a great many more clinical studies on what takes place in the body during the course of the profound emotional states, not only at the time they start, but during their course. There have been many studies of this kind made, but I don't think we have exhausted the possibilities. I do not mean to imply that the changes which take place in the body are the cause of the symptoms which the patient

develops, but I would recommend that the patient be studied as a whole from every standpoint, so we would not overlook uremia, myocarditis, etc., while profound emotional states are engaging our attention.

With regard to psychoanalytic treatment in connection with these patients, many of them recovered spontaneously (approximately twenty-five per cent) within the first year. If psychoanalysis had been instituted, it might have been credited with the therapeutic results. I had little to do with their recovery, which came about quite spontaneously, except possibly to acquaint the patient for the first time in his illness with the nature of his disorder, to carry out the simplest psychotherapeutic régime, and to give some relief by drugs. The families' economic resources were often protected by such plans. A favorable instead of a gloomy outlook gave renewed hopes to the patient and his family.

I quite agree with Dr. Henry in his discussion about observations on these patients. We need to have more contact with general medical patients, and show the internists the significance of disabling and distressing affective states. There is too great a tendency to condemn the patient by a diagnosis of "neurosis," or to feel assured that because he has some symptoms not founded on organic lesions that no organic lesions are present. Marked physiopathies often accompany such disorders.



A STUDY IN PSYCHO-DYNAMIC PATTERNS.*

By GLADYS C. TERRY, A. B.,

*Research Assistant, Phipps Psychiatric Clinic, Johns Hopkins Hospital,
Baltimore, Md.*

Adolf Meyer¹ has led us to see that if the plain life history of a person is traced and recorded on what he calls "the life chart," "the result is a record of a smooth or broken life curve of each one of the main organs and functions, and in addition, a record of the main events of the life of the whole bundle of organs, that is, 'the individual as a whole' and of the facts which determined and constituted his behavior." For instance, we find that a genetic survey of the main events, behavior attitudes and modes of expression from infancy to a late adult period, may constitute a series of findings relating to the individual as a total organism, which take the form of behavior patterns.

A recent investigation in the field of marriage by G. V. Hamilton, in which an intensive study of two hundred married men and women was made, has presented us with some very enlightening case history material which tends to corroborate the theory of relationship between certain types of early events and conditions and certain types of adult behavior. And further, it has been the means of providing us with some highly suggestive findings bearing on the possibility that the effects of early childhood and adolescent environmental conditions and experiences may tend to operate in a conditioning way, in relation to later success or failure in adjustment to the requirements of adult life. The method of procedure observed by Dr. Hamilton throughout his study remained constant for all of the two hundred cases, thereby furnishing data that are comparable.

* Made during my association with Dr. G. V. Hamilton, in the capacity of research assistant. Based on data which Dr. Hamilton describes in "A Research in Marriage." Scientific Edition. Albert and Charles Boni, New York, N. Y.

¹ Adolf Meyer, M. D. Objective Psychology or Psychobiology with Subordination of the Medically Useless Contrast of Mental and Physical.—The Journal of the American Medical Association, Sept. 4, 1915, Vol. LXV, pp. 860-862.

Using the descriptive correlations of Dr. Hamilton's research material as a basis for provisional group classifications, I have undertaken to investigate the possibility of a relative frequency in the occurrence of certain identical facts and trends in the histories of the 100 married women studied, pointing to the formulation of individual psychogenetic sequences and patterns. The preliminary step, that of evolving a suitable method for sorting out promising combinations and further testing them for the purpose of bringing to light their identical points, was rendered unnecessary, as this had previously been done by Dr. Hamilton himself—and I was privileged to utilize his method.

The histories of the 100 women used in my study were recorded—each one separately—on a large white card $16\frac{1}{2}'' \times 17\frac{1}{2}''$, in the form of perforations of the proper lettered and numbered dots symbolizing the types of answers elicited in each case by 372 questions relating to themselves, their husbands, their families, etc. My first step involved the division of these cards, or case records, into tentative groups that suggested themselves by reason of the fact that they possessed two or three outstanding points in common. For example, there are women whose histories present two outstanding features: (1) They have an inadequate capacity for response to the sex act with their husbands, *i. e.*, they do not have the fully releasing climax (orgasm) with which the sex act normally terminates for women, and (2) they are seriously dissatisfied with their marriages. It seemed to me worth while to explore the histories of this group for additional facts which would be true of all of them. During this process, it was found that they fell into several smaller groups, each of which presented suggestive identical types of early experience and adult attitudes and behavior tendencies.

The next step was directed toward an objective disclosure of the largest number of cases in a given group possessing the largest number of common factors. This was simplified greatly by the use of a glass-topped table illuminated from beneath. On this table constructed in exact proportion to hold them one directly over the other, I placed my selected groups of perforated case history cards. In this way, all points common to an entire group would be identified by a direct ray of light cast through the perforations representing such identical points. My task of elimination of cases showing too

few or meaningless identities was performed by the withdrawal of the cards one at a time from the table, making use of all possible combinations, each of which was examined separately for new illuminated perforations, or common points. This was a very time-consuming part of my study and frequently proved entirely fruitless. But, granting the existence of identical dynamic patterns and sequences in this group of 100 case histories—and I feel that some of my findings are suggestive of it—it is gratifying to realize that, given the necessary time, this method of procedure is bound to bring them to light automatically.

During an analysis of the tentative groups of cases selected for examination by this method, I made the following observation: The cases classified and grouped on the basis of an outstanding common factor of early experience disclosed a comparatively high percentage of identical features of adult life. Chart II is an example of this, as disclosed in respect to eight cases (Group A) described in this paper. On the other hand, an examination of the groups of cases classified on the basis of a common feature of their present lives, *e. g.*, those falling under such categories as "Serious Degree of Dissatisfaction with Marriage" or "Inadequate Response in the Marital Sex Relation," more frequently presented a variety of unlike types of influence operative in the childhood-adolescent period.

Of course, before a single common factor could be seriously considered to belong in a suggestive relationship to others in any small group, it was necessary to determine the frequency with which such a factor was found to occur in the lives of the total group of women studied. A large number of the common features revealed in the perforated charts were found to be present also in a high percentage of all cases, and therefore had to be considered of no particular significance in a genetic sequence.

The group which emerged from my investigation with the greatest number of suggestive equivalent combinations of facts and experiences appearing to have a possible dynamic value, I shall refer to as *Group A*. This group of eight women represents all, within the 100 cases studied, who had been victims of an incestuous aggression during the prepubertal or pubertal period of life.

For purpose of comparison, I have similarly traced, by an objective process of scoring, the lives of eight women who were found

CHART I.

Certain Types of Facts and Experiences Relating to the Childhood and Adolescent Periods
Found to Have a Relatively Greater Frequency in Group A (8 cases)
A Comparison with Group X (8 cases) and Group Y (100 cases)

Group A - 8 women who experienced frightening or repelling sexual aggressions during childhood or adolescence

Group X - 8 women whose records scored an absence of certain suggestive pathological features in childhood and adult life (Points 24, 25, 57, 58)

Group Y - 100 women representing the total number studied

• Used to show number of cases

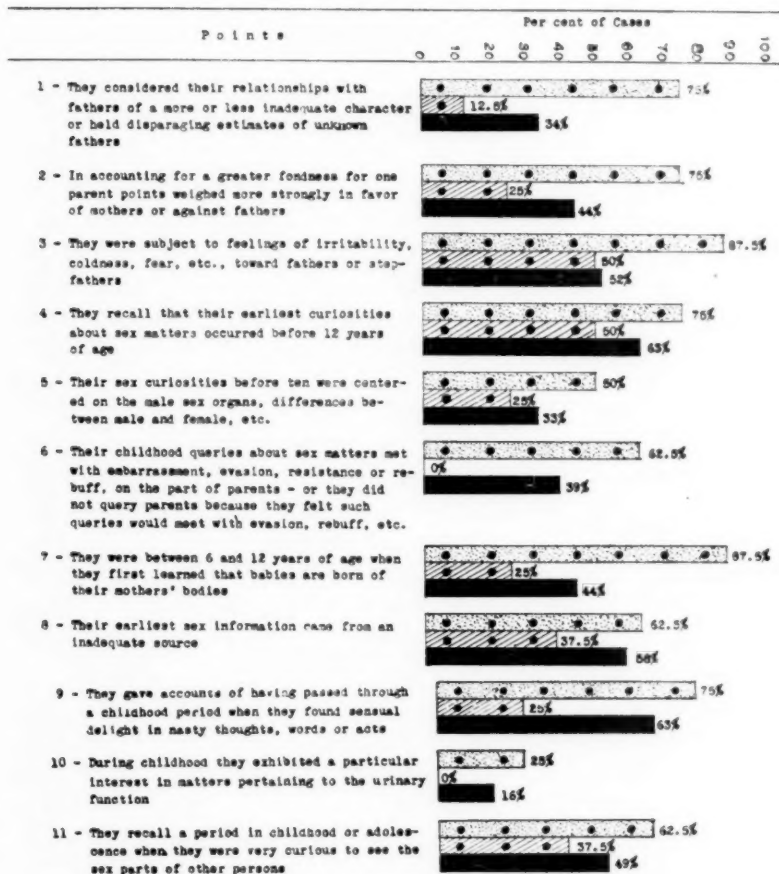
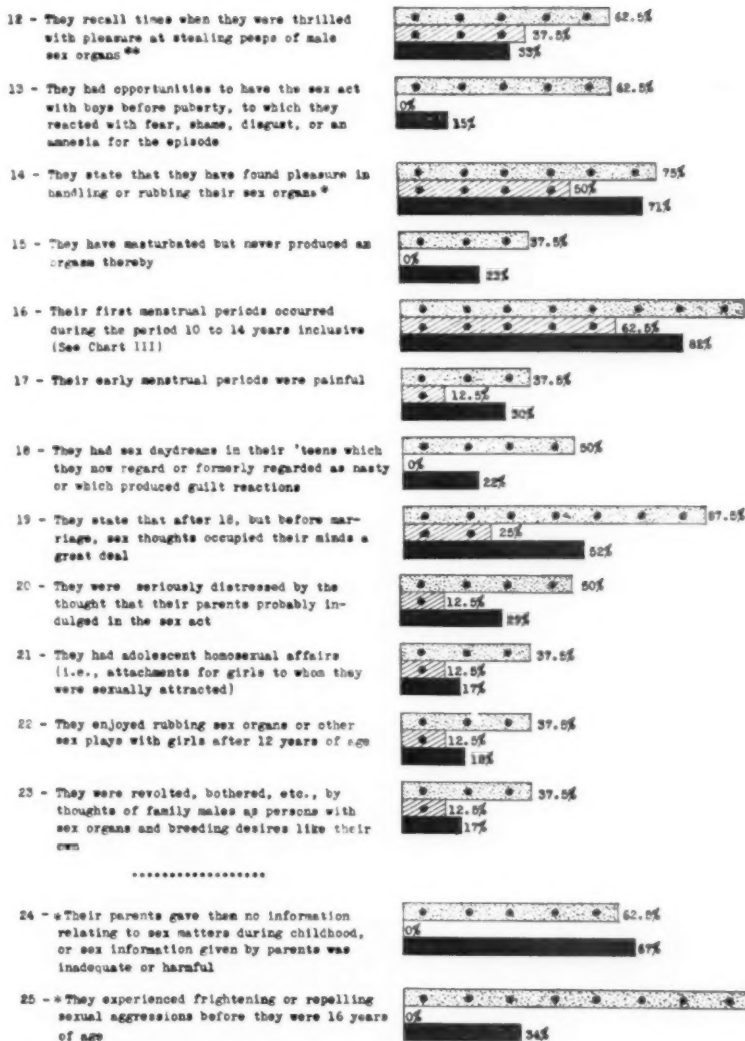


CHART I (Continued).



*Point used in the selection of Group X for purposes of comparison with Group A.

**Period unspecified

CHART II.

Certain Types of Facts and Experiences Relating to the Adult Period
Found to Have a Relatively Greater Frequency in Group A (8 cases):
A Comparison with Group X (8 cases) and Group Y (100 cases)

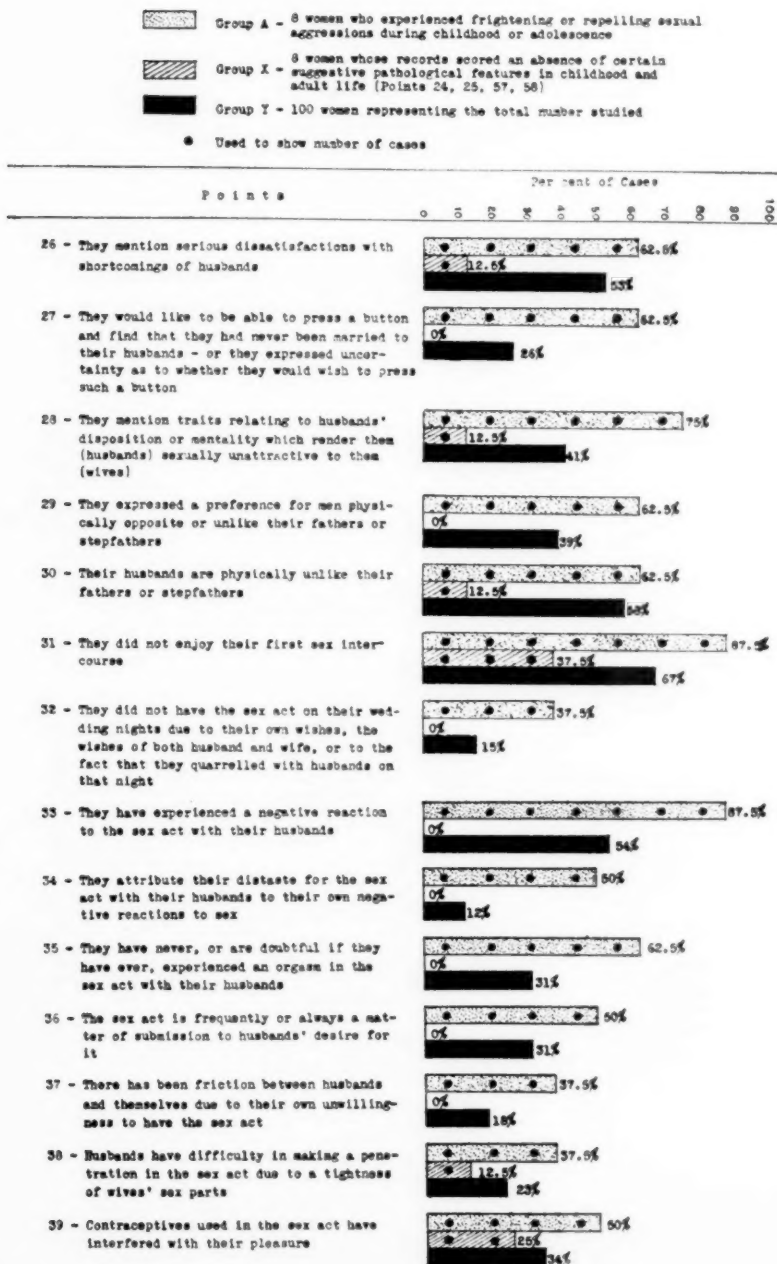
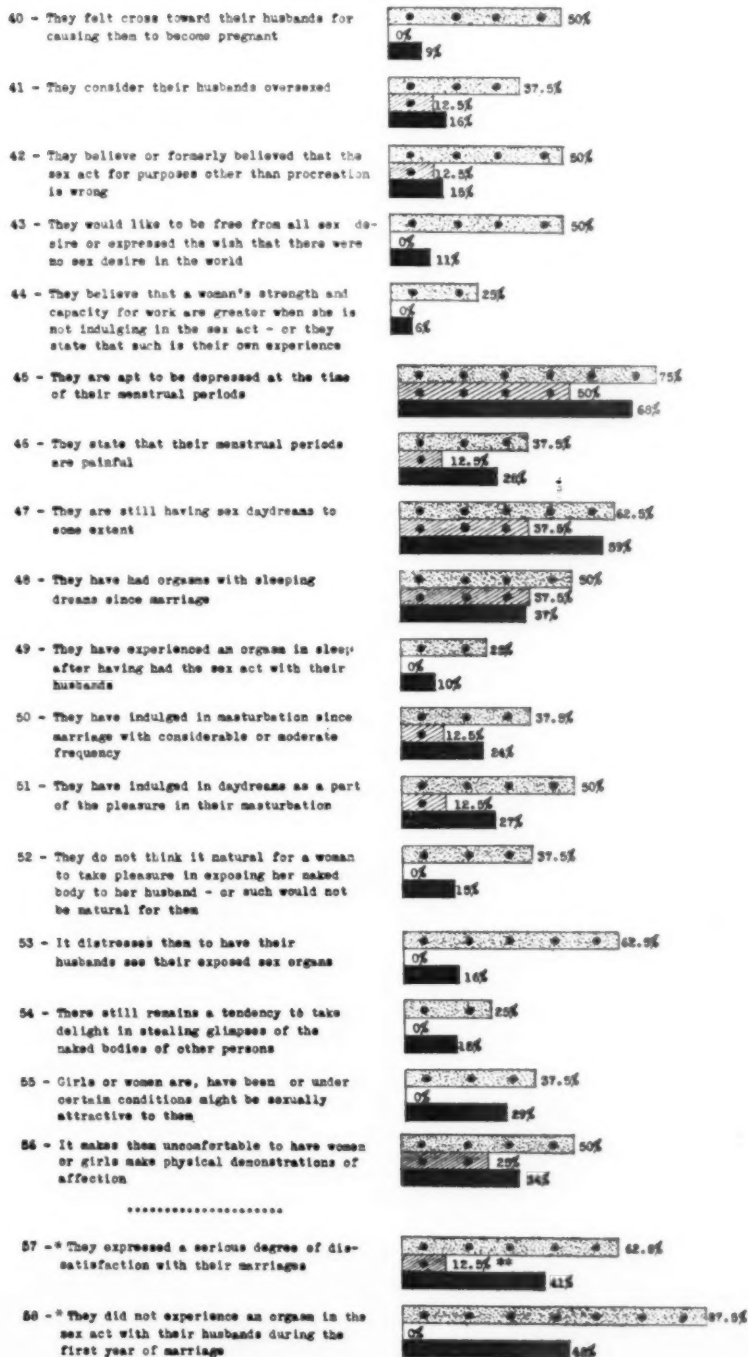


CHART II (Continued).



* Point used in the selection of Group X for purposes of comparison with Group A

** See text - Page 88

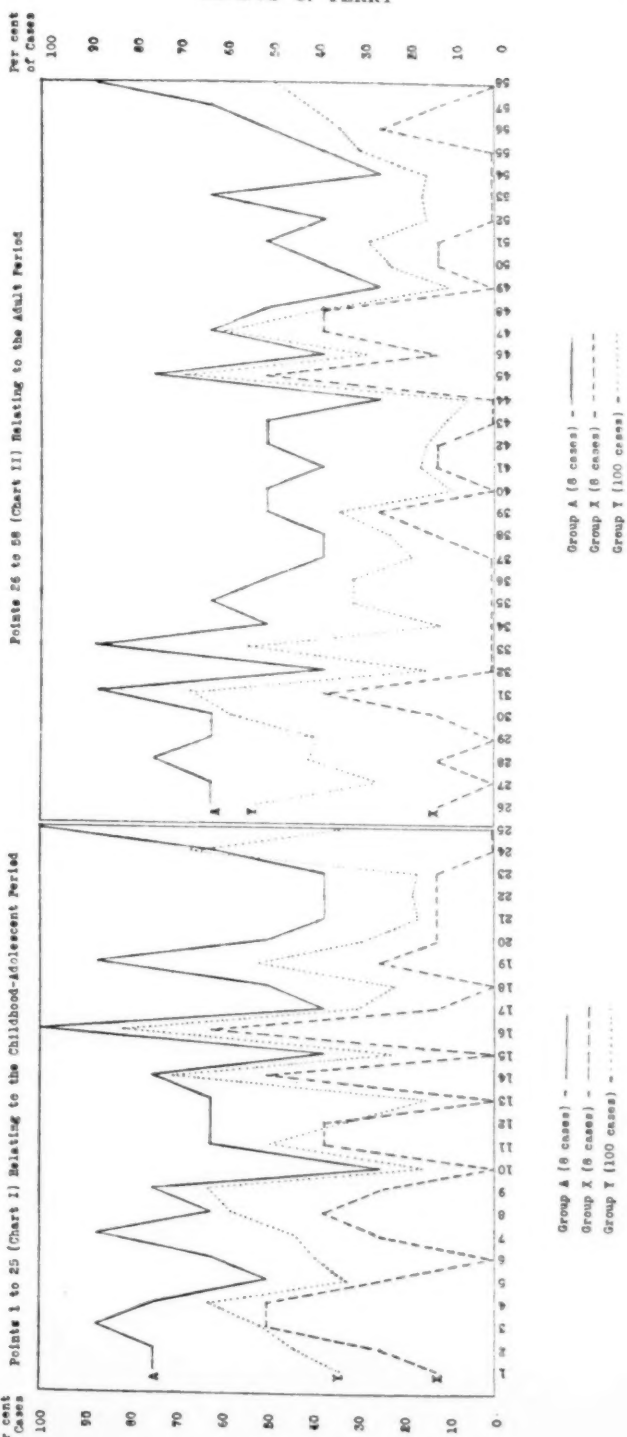
to present a relatively high degree of non-pathological features. This group I have called *Group X*. None of these women had been exposed to the possible conditioning influences of an early sexual aggression of any kind, nor to an unwillingness on the part of their parents to give them helpful enlightenment in the matters of sex during childhood. These facts along with others pointing to the high degree of adequacy with which each of them appear to have functioned in their marriages, places this group in a very interesting contrast to *Group A*. The accompanying charts are descriptive of the relative frequency with which certain facts and experiences relating to both early and adult life were found to be present in *Group A*, *Group X* and *Group Y* (*Group Y* representing the total number of cases studied).

Viewing the contents of these charts in terms of their descriptive values alone—the small sets of figures with which the percentages have been computed precluding any statistical interpretation—I have been impressed with the suggestively high degree of adverse tendencies and reactions that appear to operate in the lives of the women comprising *Group A*. The most outstanding feature disclosed in the histories of the women of this group would appear to be a marked degree of inadequacy of adjustment to the requirements of adult life. We find that seven or 87.5 per cent of them present serious difficulties in adjustment to the marital sex relationship by reason of their strong negatively conditioned reactions to it. The eighth woman, though not expressing such a tendency, is doubtful if she has ever experienced an orgasm in the sex act with her husband—likewise suggesting itself as a possible manifestation of a blocked psychosexuality. Five of the women, or 62.5 per cent of them, expressed a serious degree of dissatisfaction with their marriages. All of them have evinced symptoms which are classifiable, in the older terminology, as neurotic—they are badly adjusted and highly unstable women.

The frequency curves (Curves I and II), based on points 1 to 58 outlined in the foregoing charts, shed further light on the degree of contrast to be found in the patterns of *Group A* and *Group X*. *Group A* presents a consistently higher degree of negative facts and conditionings than is shown for the total cases studied (*Group Y*), while the curve for *Group X* falls considerably below *Group Y* with but a few slightly varying exceptions.

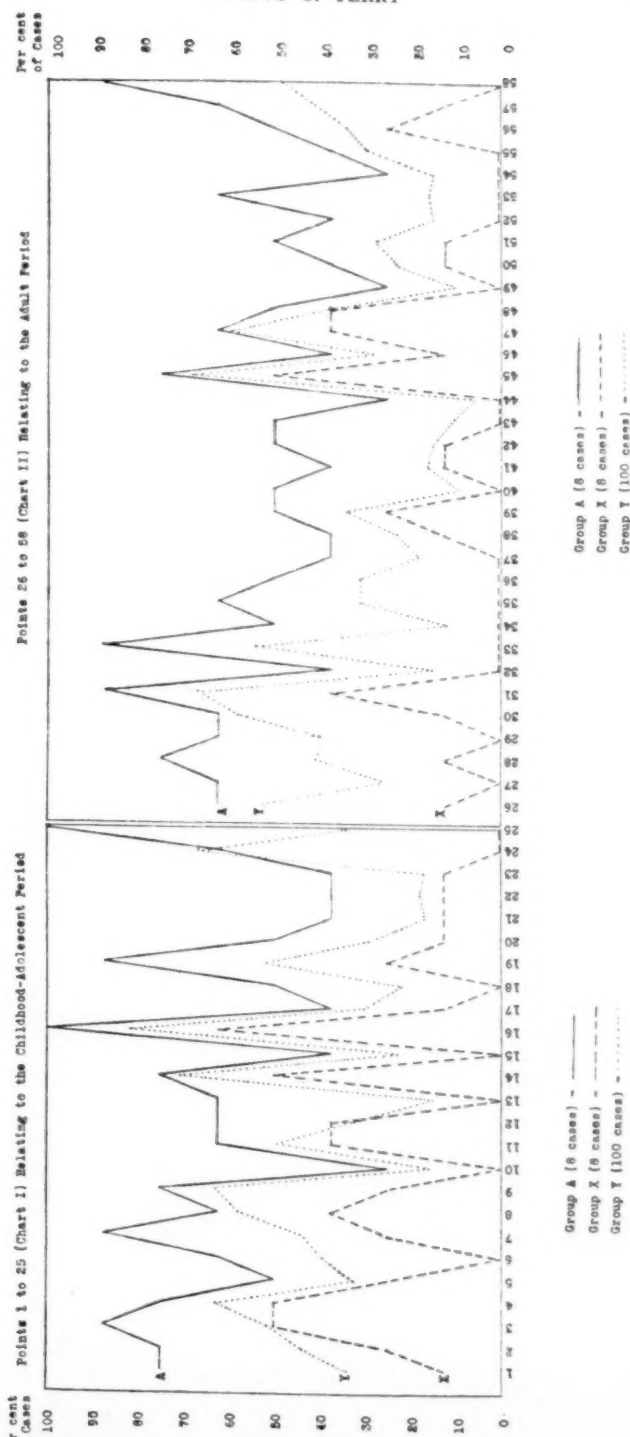
CURVE II

Points 26 to 58 (Chart II) Relating to the Adult Period



CURVE I

Points 1 to 25 (Chart I) Relating to the Childhood-Adolescent Period



A further comparison with reference to the adequacy with which the women of these three groups appear to function in a sexual capacity is brought out in the following table:

Points	Group A (8 cases)		Group X (8 cases)		Group Y (100 cases)	
	No.	Per cent	No.	Per cent	No.	Per cent
Experienced orgasms with the sex act within one week after marriage	1	12.5	7	87.5	21	21.0
Experience orgasms in the sex act with their husbands—always, usually, 90 per cent or more.....	1	12.5	7	87.5	34	34.0

Dr. Hamilton's method of self-confidence gradings gave an average of 12.74 for the total group of 100 women. Thus all gradings falling below 12.74 suggest a higher than average degree of subjective inferiorities. The average grades for Groups A and X by this method are respectively 12.0 and 14.375.

Only one woman in Group X expressed a considerable degree of dissatisfaction with her marriage. An examination into her record disclosed the fact that this dissatisfaction was due entirely to her husband's serious state of alcoholism and his sexual impotency. Without exception, they can all be said to have presented an unusual degree of equilibrium in the solution of their individual problems. Four of them gave the clinical impression of having reached the most nearly ideal state of poise and balance found in the entire group of 100 cases.

The relationships disclosed in the foregoing charts are highly suggestive of classification into two rather distinct types of facts and manifestations. Let us designate these classifications as (1) determining factors and influences and (2) subsequent behavior manifestations.

It is conceivable that any one of the listed environmental factors and experiences which appears to be a suggestive determinant of later behavior manifestations in Group A, when acting as an isolated influence in the life of an individual, would produce no pathological effects, but that a combination of them might very readily tend to establish an adversely conditioned reactive mechanism. Dr. Hamilton has called our attention to the possibility that the ultimate effects of a sex aggression or other terrifying sex experience during childhood are importantly determined by the previously

established reactive value of sex in general for the victim. For example, the victim of such an experience whose parents had imparted to her early in life a wholesome factual and fully enlightening account of all matters pertaining to sex, may quite possibly emerge from her experience without suffering serious ill effects, while another victim who had been reared in an atmosphere that tended to condition her to react with feelings of fear and shame to all sex curiosities and impulses may develop a psychoneurosis. The terrifying sex aggression, in the latter case, one suspects to be the specific determinant of the later psychoneurotic condition, and the inadequate preparation for her sex life a predisposing factor. I found that none of the women comprising Group A had been given helpful information concerning sex matters previous to the frightening or repelling sexual aggressions of which they were victims.

There is an additional feature in the aggressions experienced by these women, *i. e.*, the incestuous element. Indications, as revealed in the sequence of facts outlined in the charts, tend to favor the possibility that this factor has played an important part, from a genetic standpoint, in the establishment of a particular type of reactive equipment.

The disclosure in Group A of a relatively high degree of certain identical types of early facts and experiences, together with a high percentage of certain later behavior manifestations, is suggestive of the operation of a determinant-resultant mechanism in the lives of these women. Such a theory has been strengthened further by the corroborative quality of some of the findings elicited by Dr. Hamilton's study of the 100 married women. The following comprise a few of the suggestive relationships which emerged from his analyses:

1. Relating to the possibility that the general reactive value of maleness may be determined for women during childhood by their contacts with their fathers and brothers.
2. Suggestive relationship between the age at which the first sex information is imparted in childhood and the later degree of capacity to experience an adequate orgasm in the marital sex relation. The highest percentage of women having an adequate orgasm capacity was found to be among those who had learned the truth about the birth of babies before they were six years old.

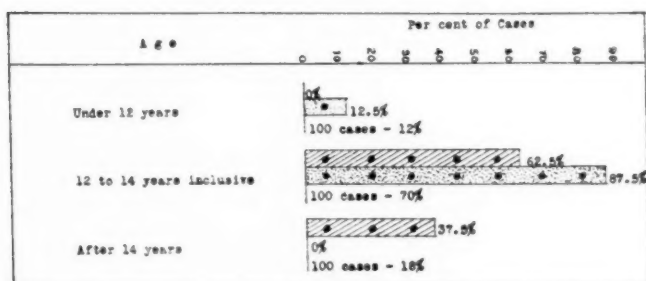
3. Suggestive relationship between the adequacy of early sources of sex information and adult psychosexual development.

4. Suggestive relationship between the date of first menstruation and present orgasm capacity. "Only 33.33 per cent of the women who menstruated before 12 had a present adequate orgasm capacity whilst 61.11 per cent of those who first menstruated after 14 were rated as adequate in this respect. . . ."²

CHART III.

Age of First Menstrual Period by Groups *

- Group A - 8 women who experienced frightening or repelling sexual aggressions during childhood or adolescence
- Group X - 8 women whose records scored an absence of certain suggestive pathological features in childhood and adult life



*Group A - Average age of first menstrual period is 13 years
Group X - Average age of first menstrual period is 14½ years

5. Suggestive relationship between premenstrual depression and inadequate orgasm capacity.

6. Suggestive relationship between the tendency to have sex day-dreams and degree of marital dissatisfaction.

7. Suggestive relationship between premarital sex aggression and orgasm capacity in the marital sex relation.

8. Suggestive relationship between childhood-adolescent incestuous aggressions and failure to make adequate adjustment in adult life.

9. Suggestive relationship between an inadequate orgasm capacity and manifestations of personality imbalance.

² See Chart 3 for a comparison of Groups A and X with respect to this feature.

It seems unlikely that mere coincidence can account for the presence of a uniformly higher degree of the above-mentioned parallelisms in Group A than in Group X. On the other hand, it seems probable that here we may have a suggestive pattern which points to its outgrowth as a result of earlier determinants of a common nature, the most outstanding of which was an abrupt and frightening awareness of the sexual urges at an early age in response to the sexual advances of a male member of the family, with the subsequent development of guilt feelings and a negatively conditioned reaction to all further impulses of a sexual nature.

A further survey of the points comprising the early types of facts and events which score high in the lives of the women of Group A brings out a suggestively interesting circumstance in the very inadequate character of the relationship between father and daughter or stepfather and daughter. Attention has been called in Chart 1 to the fact that 34, or 34 per cent of the total group (100 cases), considered their relationships with their fathers during the childhood-adolescent period to be of an inadequate character (*i. e.*, they lacked feelings of affection and admiration, felt fathers were negligible types, were afraid of fathers, etc.) or held disparaging estimates of unknown fathers due to circumstances of divorce or separation of parents, and that six, or 75 per cent, of the eight women of Group A belonged in this category. Group X, on the other hand, scored one, or 12.5 per cent, on this point. The natural query stimulated by a consideration of this circumstance reverts to the possibility that we may be observing here a resultant phenomenon of an adversely conditioned reactive mechanism. Does it not appear to corroborate the theory that such early incestuous experiences may tend to effect a premature and startling awareness of a sexual responsiveness to family males, and that the feelings of shame, fright or guilt accompanying such a realization may serve to establish a mechanism of inhibitions and repressions which block the path to a normal, friendly and affectionate relationship with their fathers, and later to the enjoyment of a satisfactory love life with their husbands?

Following the pattern presented in Group A genetically, we note that a larger percentage of these women found themselves incapable of a wholesome adjustment to their adolescent sex curiosities and

impulsions than were found in either of the other groups. One suspects that the fact that 37.5 per cent of them, as compared with 12.5 per cent for Group X and 18 per cent for Group Y, gave overt expressions to homosexual impulsions during the adolescent period suggests itself as the resultant of a concurrent inhibited responsiveness to males during this period.

Five or 62.5 per cent of the women of Group A having found no assistance in a solution of their conflicting emotions in a frank discussion of their problems with their parents, it is conceivable that maturity would find these women more or less inadequately equipped for a successful adult fulfillment of life. Hence we are not surprised to find present to a marked extent in this group such consequences as serious difficulties in adjustment to the marital sex relation, dissatisfactions with their husbands and marriages, and a rather high degree of personality imbalance.

A more intensive genetic analysis of the eight cases comprising Group A, with a view to bringing to light any two or more that appear to possess a large number of dynamically significant factors, resulted in the isolation of two very interesting cases—and the only two in the entire 100 that conform to a particular type of psychosis, *i. e.*, that described by Emil Kraepelin³ as “*Die Constitutionale Verstimmung*.” This type of manic-depression is conspicuously characterized by more or less chronic states of depression and discouragement, hypersensitivity to the responsibilities and difficulties of life, and a painful sense of self-inadequacy, frequently accompanied by feelings of guilt which attach themselves to an incident that occurred early in life, hypochondriacal fears and thoughts of suicide. According to Kraepelin, it differs from the distinctly marked periodic manic-depressive type of psychosis in that it presents a more or less constantly operative state of emotional blocking and depression, which pursues a slowly advancing, uninterrupted course of psychic and somatic changes. In some cases, it takes the form of a series of irregular fluctuations and abatements, while others are characterized by more sharply circumscribed, fully developed illnesses and deep remissions. None of them, however, ever succeed in entirely freeing themselves from their condi-

³ Emil Kraepelin, M. D., *Klinische Psychiatrie*. Band II., 1904, pp. 757-764.

tion. Kraepelin states further that a factor found to appertain for the most part in the cases under his observation was a premature awakening of the sex impulses and an early indulgence in some form of overt sexual behavior which incited within them feelings of wickedness and self-loathing. Their vain strivings to free themselves from a subjectively imposed social stigma culminates in the chronic manifestations that are symptomatic of this type of manic-depression.

Kraepelin's findings are suggestively reflected in the following 53 equivalent points which came to light during my analysis of the two chronic cases of depression mentioned:

FACTS AND EXPERIENCES RELATING TO CHILDHOOD
AND ADOLESCENCE.

1. They did not have an affectionate relationship with father or stepfather.
2. They were subject to feelings of irritability toward father or stepfather.
3. Father's sentimentality affected her badly, in the one case; stepfather's sexuality was revolting to her, in the other.
4. Both prefer men the opposite of father's or stepfather's type in physical appearance.
5. In accounting for greater fondness for one parent, points were in favor of mothers or against fathers.
6. They were given no information at all or inadequate information about sex matters by their parents during childhood.
7. They learned between the ages of six and twelve that children are born of their mothers' bodies.
8. Sex information was imparted to them in such manner or by such person as to effect an unpleasant experience and to inspire fear or guilt reactions in connection with it.
9. Their first menstrual periods elicited both feelings of elation and disturbing mental reactions.
10. Their first menstrual periods occurred at 12 years of age or earlier.
11. Both experienced repelling and frightening incestuous aggressions before the age of puberty and before they had been adequately informed concerning sex matters. (In one case a brother was the aggressor and in the other her stepfather.)
12. The incestuous aggression was followed in one case by a serious emotional upset and in the other by a total amnesia for the episode.
13. There were attempts at copulation with their brothers before they were ten years of age.
14. They also gave accounts of sex plays with little boys other than their brothers during the 5 to 6 year period.

15. Both gave accounts of having passed through a period in childhood when they found a certain sensual delight in various kinds of nasty thoughts, words or acts.
16. They gave accounts of childhood behavior that evinced a particular interest in the urinary function.
17. They gave histories of self-exposure of sex parts to little boys before they were 10 years of age.
18. Both state that they have experienced a thrilling pleasure in stealing peeps of male sex organs.
19. Referring to their first love affairs after puberty, they state that their love was pure, in the sense of being free from conscious sex desire.
20. The accounts of their love affairs indicate that there was a strong fear or guilt reaction to demonstrations of a physical nature on the part of their lovers.
21. They either began or increased masturbation during love affairs which involved "spooning."
22. Neither of them ever produced an orgasm when masturbating themselves.
23. The fact that their parents indulged in the sex act was a shocking or very distressing realization to both of them.
24. Both give a history of several homosexual attachments (*i. e.*, attachments for girls to whom they were sexually attracted), the first of which occurred during childhood with later episodes extending into late adolescence.
25. They state that now it makes them uncomfortable to have women put their arms around them or make other physical demonstrations of affection.
26. Both admit that they have been sexually attracted to girls or women. (In one case this tendency still remains.)

FACTS RELATING TO THE ADULT PERIOD.

27. The marital situation as a whole is unsatisfactory to them.
28. Their dissatisfactions with the marriage date from the very beginning or immediately after marriage.
29. Both give as factors in favor of a continuation of the marriage:
 - (a) Welfare of the children.
 - (b) Husbands' happiness.
30. Neither has extra-domestic vocation—both state that marriage has hampered the fulfilment of their ambitions for a career for themselves.
31. Both mention additional non-sexual frustrating factors in their present lives.
32. Both have had recurring suicidal impulsions.
33. The sex act with their husbands has had a negative reactive value—has been distasteful to both.
34. They attribute their distaste for the sex act to their own inadequacies.
35. The sex act is always or usually a matter of submission to husbands' desire for it.

36. They have never experienced a fully releasing climax or orgasm in the sex act.
37. They both experienced a great deal of pain with the first sex relation.
38. They state that their husbands are very unlike their fathers or father substitutes (one has known only her stepfather).
39. Husbands are unlike father or stepfather in disposition.
40. Husbands are unlike their brothers in both physical appearance and disposition.
41. Both mention personality characteristics which render their husbands sexually unattractive to them.
42. Contraceptive measures used in the sex relation have interfered with their pleasure.
43. They felt cross toward their husbands because they (husbands) caused them to become pregnant—yet both state that they wanted very much to have children.
44. Pregnancy increased their sex desire.
45. Both state that they experience either an increased state of depression or high tension previous to their menstrual periods.
46. They both claim to be more irritable preceding or at the time of menstruation.
47. Both are still having sex daydreams—one has vague fantasies of being satisfied sexually, the other identifies herself in imaginary sexually satisfying relations with men other than her husband.
48. They do not believe that women whose husbands are satisfactory to them sexually would have sex daydreams.
49. They state that after 18, but before their marriages, sex thoughts occupied their minds a great deal.
50. Both are lacking in self-confidence with reference to the making of new social contacts—they feel inadequate and thwarted in their efforts to express themselves.
51. Both wives state that their husbands are unhappy or annoyed because of their (wives') more or less chronic state of unhappiness.
52. The husbands of both express dissatisfactions with reference to their wives' (a) personality traits, (b) tendency to display emotionally derived attitudes, and (c) general inability to become adjusted.
53. Both husbands rate their marriages as very unsuccessful.

The above behavior pattern presents considerable evidence pointing not only to a very early awakening of the sex impulses, but also to a premature expression in some form of childhood sex activities on repeated occasions. We find that (1) during the 5 to 6 year period their plays with little boys were tinged with a sexual character, (2) before 10 years of age they had attempted to copulate with their brothers, (3) they gave histories of self-exposure of sex parts to little boys before they were 10 years of age. Both Kraepelin

and Hamilton have said that their clinical observations lead them to believe that there is a relationship between a premature awakening of the sexual functions and later psychopathic tendencies.

In contrast to these prepubertal sex activities, we find the adolescent period appears to have brought, in the case of these two women, an onrush of inhibitions, repressions and conflicts;—the first love affairs occurring in this period were “pure,” in the sense of being free from conscious sex desires; they appeared to have had strong fear or guilt reactions to any physical demonstrations on the part of their lovers; they gave accounts of a series of homosexual attachments extending late in their ’teens.

The outstanding identical features of their adult lives may be summed up as follows:

1. They relate serious dissatisfactions with their husbands and marriages as a whole.
2. They are incapable of functioning normally in the marital sex relationship with their husbands.
3. They seek an outlet for their pent-up sex desires in sexually satisfying daydreams.
4. They are frustrated in their efforts to function effectively in non-sexual capacities.
5. They disclose marked subjective inferiorities.
6. They are victims of a chronically operative state of discouragement and depression.

Perhaps we may find some explanation of this behavior mechanism in terms of MacCurdy's⁴ theory of depression expressed by him as follows:

In this mood there are elements of sadness which on analysis seems to be a subjective recognition of blocked energy. . . . The sadness also has another component, a feeling of wickedness. . . . The depressive feeling of wickedness is an intensely subjective and self-contained reaction, which bears no relation to other people. It probably represents somehow the conflict between sex and herd instincts, since these are the ones we find struggling against one another in manic-depressive insanity.

It is apparent, I trust, that the foregoing tentatively suggested formulations have been given no weight of consideration on other than a factual and descriptive basis, and that large numbers of cases presenting a foundation for sound statistical evaluation and inter-

⁴ John T. MacCurdy, M. D. *Problems in Dynamic Psychology*. Macmillan Co., New York, 1922.

pretation will have to be studied genetically before we can determine with any degree of conclusiveness the extent of the relationship between what have been designated as determining factors and resultant behavior manifestations. It is hoped that the comparative psychologist who deals with a manageable and less complex material will consider this a worthy field for experimentation and present us with a few psycho-dynamic paradigms which will assist in the isolation of the more complex psycho-biological sequence trends.

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PHYSICAL FINDINGS IN SCHIZOPHRENIA.*

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AND

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This study is based on 1196 cases of schizophrenia, the entire number of first admissions to the Boston Psychopathic Hospital for the four-year period of 1923-1926 inclusive. As controls, 836 cases of manic-depressive insanity and 412 cases of general paresis (the total number of first admissions of these two psychoses admitted during the same period) were utilized since manic-depressive insanity (like schizophrenia) is a mental disorder of unknown etiology, whereas general paresis is an organic brain disease of known etiology.

This study represents a statistical analysis of certain physical and historical data.

Chart 1 shows the percentage of cases with somatic findings. It will be seen that negative findings are much more frequent in schizophrenic and affective disorders than in general paresis and that the percentage of negative findings is practically the same for the schizophrenic and affective psychoses.

The rules of coding placed positive neurological findings in general paresis, if due to syphilis, in the "positive unspecified" group and only neurological findings from other causes were listed as "neurological." This explains the low percentage of positive neurological findings in general paresis and the high percentage of positive unspecified findings. In general there is little difference in the findings for the schizophrenic and affective groups.

The following items show consistent differences:

(1) Both sexes with affective disorders have more circulatory symptoms than do the schizophrenic cases.

* This article is a part of a study of schizophrenia at the Boston Psychopathic Hospital which was made possible by a grant from the Laura Spelman Rockefeller Foundation. Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

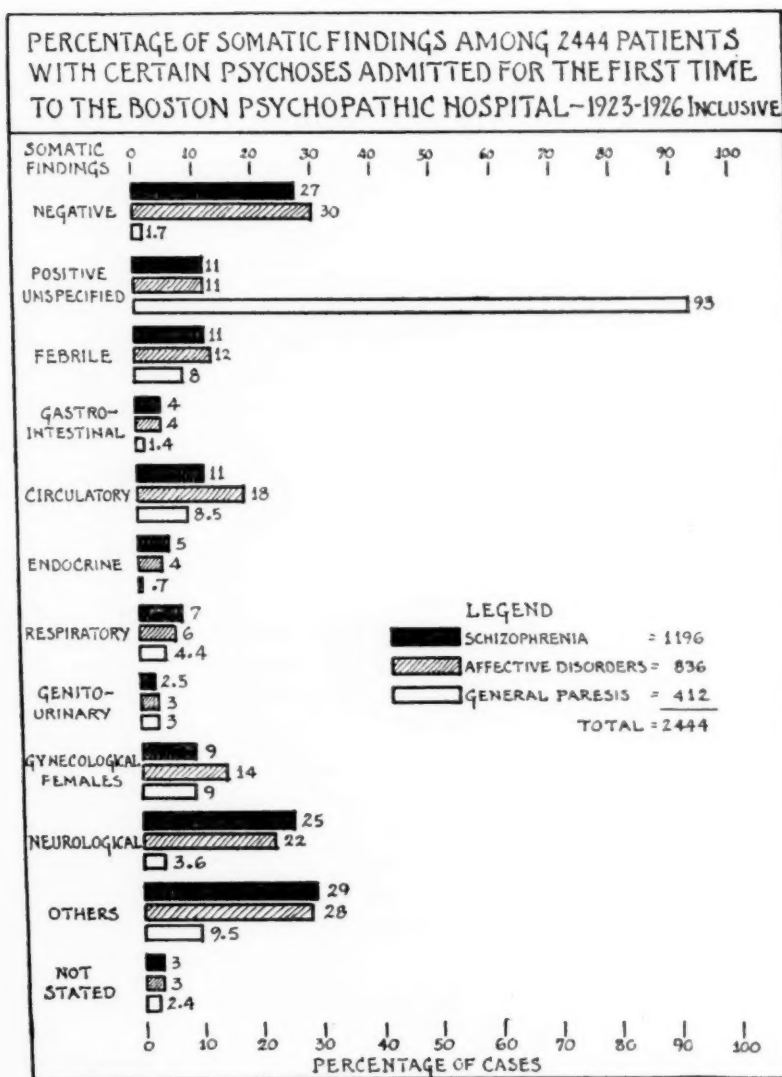


CHART I.

(2) The schizophrenic males show more endocrine symptoms than do the affective males.

Comparing the sexes in each psychosis (not shown on the chart but done on tables which are not printed):

(1) Circulatory symptoms are more common among females with schizophrenia than males.

(2) Febrile symptoms are more frequent among females with schizophrenia and females with affective disorders than among males in the corresponding groups.

(3) Neurological symptoms occur more often among males with affective disorders than among females.

(4) Endocrine symptoms are more common among females with affective disorders than among males.

(5) Negative entries occur more frequently among males with schizophrenia than among females.

The total group of 2444 persons was sorted for age (over 40 years and under 40 years) and it was found that the number of entries under the following headings was significantly high for patients under 40 years of age—"negative," "febrile," and "others." Patients of 40 years showed significantly high numbers under "positive unspecified" and "circulatory." We may note here the difference between the ages at admission of the various groups.

TABLE I.
AGE AT ADMISSION (1923-1926).

		Mean	Median
Schizophrenia	{ Male	29.2	28.1
	{ Female	34.3	33.6
Affective disorders..	{ Male	39.3	38.1
	{ Female	37.2	35.6
General paresis	{ Male	43.8	43.1
	{ Female	43.3	42.7

Certain differences in the percentage distribution of symptoms appearing in Chart I may be due to the different age distributions of the groups. Thus, under "circulatory" we note 11 per cent for schizophrenia and 18 per cent for affective disorders. Since circulatory disturbances in the entire sample are more common among

cases over 40 years of age we might expect and do find more cases in our affective group, which is older than the schizophrenic group. We might also expect the paretics, who are older, to show a higher per cent of circulatory symptoms. The special rules for coding circulatory, neurological and other symptoms for paretics explains the low percentage (8.5) appearing on the chart.

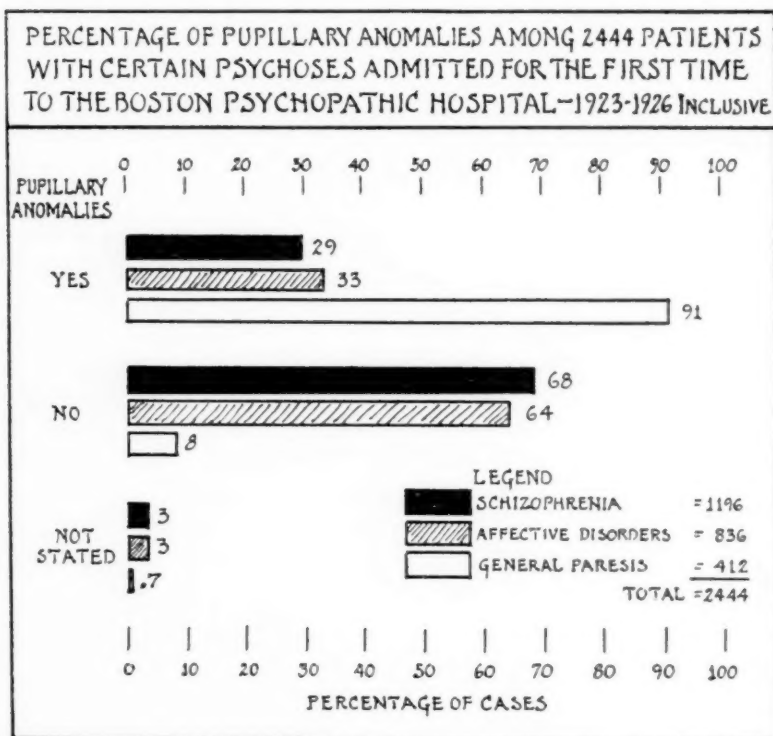


CHART 2.

Chart 2 shows the percentage of cases with pupillary anomalies. As would be expected, general paresis shows a high percentage (91 per cent) and is much higher than that of either the schizophrenic or affective groups. The schizophrenic and affective groups show approximately the same percentage of positive findings (29 per cent and 33 per cent). In sorting for age, it was found that this was a significant factor as patients over 40 years of age had a

much higher percentage of positive findings than those below 40. No difference between sexes appeared when that distribution was made.

The incidence of glycosuria in the groups is shown in Table 2.

TABLE 2.

NUMBER AND PERCENTAGE OF GLYCOSURIA FINDINGS AMONG 2444 PATIENTS, ARRANGED BY DIAGNOSIS, 1923-1926, INCLUSIVE.

Diagnosis	Yes		No.		Unknown	
	No.	Per cent	No.	Per cent	No.	Per cent
Schizophrenia	47	4	1064	89	85	7
Affective disorders	44	5	725	87	67	8
General paresis	21	5	360	87	31	8

The findings are practically the same for all three groups and appear to have little significance from a psychiatric standpoint. The percentage of positive findings is considerably lower than reported by some writers. Distribution by age and sex reveals no significant differences.

The number and percentage of afebrile albuminuria findings appear in Table 3. Here also, the percentage of positive findings

TABLE 3.

NUMBER AND PERCENTAGE OF ALBUMINURIA FINDINGS AMONG 2176 AFEBRILE PATIENTS, ARRANGED BY DIAGNOSIS, 1923-1926.

Diagnosis	Yes		No.		Unknown	
	No.	Per cent	No.	Per cent	No.	Per cent
Schizophrenia	32	3	959	90	69	7
Affective disorders	30	4	656	89	50	7
General paresis	12	3	341	90	27	7

is quite low and is practically the same for all three groups. Distribution made by age and sex reveals no significant differences.

Findings from blood and spinal Wassermann reports are shown in Tables 4 and 5. The low percentage of positive findings in schizophrenic and affective psychoses is what would be expected. The occurrence of 20 per cent of negative blood Wassermann tests in general paresis (and with 10 per cent recorded as unknown, it would probably be even more) is considerably higher than usually reported. One cause is undoubtedly the number of cases which have

had a considerable period of treatment before coming to the Boston Psychopathic Hospital. Such a high percentage of negative blood Wassermanns in general paresis emphasizes that one should not exclude general paresis because of a negative blood Wassermann. Distribution by years and by sex showed no significant difference.

The results of the Wassermann test of the spinal fluid is essentially as would be anticipated. Schizophrenic and affective disorders show a positive test in a fraction of 1 per cent of the cases and there is no significant difference between the two groups. A study

TABLE 4.

NUMBER AND PERCENTAGE OF BLOOD WASSERMANN'S AMONG 2444 PATIENTS, ARRANGED BY DIAGNOSIS, 1923-1926.

Diagnosis	Yes		No		Unknown	
	No.	Per cent	No.	Per cent	No.	Per cent
Schizophrenia	24	2	1099	92	73	6
Affective disorders . . .	15	1.8	770	92	51	6
General paresis	290	70	81	20	41	10

TABLE 5.

NUMBER AND PERCENTAGE OF SPINAL WASSERMANN'S AMONG 2444 PATIENTS, ARRANGED BY DIAGNOSIS, 1923-1926.

Diagnosis	Yes		No.		Unknown	
	No.	Per cent	No.	Per cent	No.	Per cent
Schizophrenia	4	.4	350	30	836	70
Affective disorders . .	2	.2	250	30	584	70
General paresis	296	72	11	2.7	105	25

of the six cases with positive spinal fluid Wassermanns showed that two cases were due to errors in coding, that in the other four cases all other tests of the spinal fluid were negative and that the clinical study of the cases, including the physical and neurological examinations, suggested no reason for altering the diagnosis. The possibility of errors on the part of the laboratory or in labelling tubes would have to be considered, particularly as the other findings in the spinal fluid were completely negative.

A negative Wassermann test was obtained in $2\frac{7}{10}$ per cent or 11 cases of general paresis. A study of the 11 cases showed that some were cases that had had intensive treatment and were reported to have had positive spinal fluid Wassermanns on previous occasions,

while others were cases in which the other tests, such as the cell count, globulin and colloidal gold, together with the clinical findings, indicated general paresis in spite of the negative Wassermann.

The high number of "not stated" means that lumbar punctures were not done in 70 per cent of the cases diagnosed as schizophrenic or affective psychoses and in 25 per cent of the cases diagnosed as general paresis.

Chart 3 shows the percentage of white blood counts on 1657 patients instead of 2444, since a routine white blood count was not done until April, 1924. The large number of white counts over 10,000 appears to be of significance, although the interpretation is not easy. Fever, dehydration and obscure infections are at once

TABLE 6.

NUMBER AND PERCENTAGE OF PREGNANCIES AMONG 1154 FEMALE PATIENTS, ACCORDING TO DIAGNOSIS, 1923-1926, INCLUSIVE.

Diagnosis	Number of pregnancies									
	None		1-3		4-6		7+		Unknown	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Schizophrenia	316	53	137	23	34	6	22	4	82	14
Affective disorders ..	191	38	173	34	60	12	25	5	59	11
General paresis	18	33	17	31	6	11	3	5	11	20

thought of as possible causes. There is no significant difference in the three types of disorders or in the sex distribution.

The alcoholic habits of 2444 patients are shown in Chart 4. Abstinent was defined as totally abstinent. The criterion for coding "temperate" was the social status and group habits of the individual. "Intemperate" included both periodic and continuous habits. As would be expected, alcoholism is infrequent in the schizophrenic and affective states but more frequent in general paresis. There is a marked sex difference, females being more abstinent than males.

Table 6 shows the number of pregnancies among 1154 female patients. The schizophrenic females show the highest percentage that had never become pregnant and the paretic females the lowest percentage. Among those that did become pregnant, there is no significant difference in the number of pregnancies.

PERCENTAGE OF WHITE BLOOD COUNT OF 1657 PATIENTS WITH CERTAIN PSYCHOSES ADMITTED FOR THE FIRST TIME TO THE BOSTON PSYCHOPATHIC HOSPITAL—APR. 1924—DEC. 1926 INC.

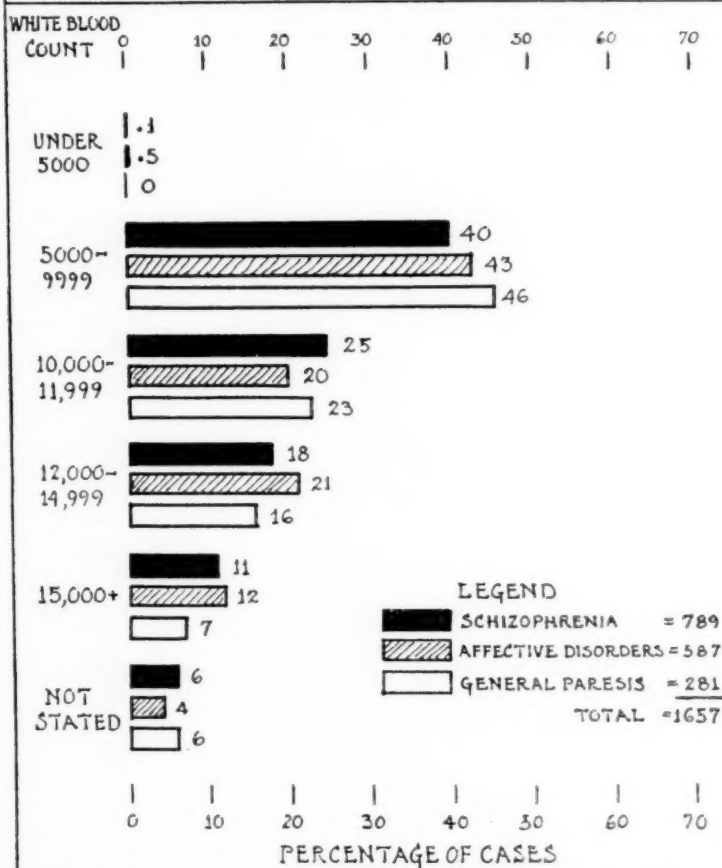


CHART 3.

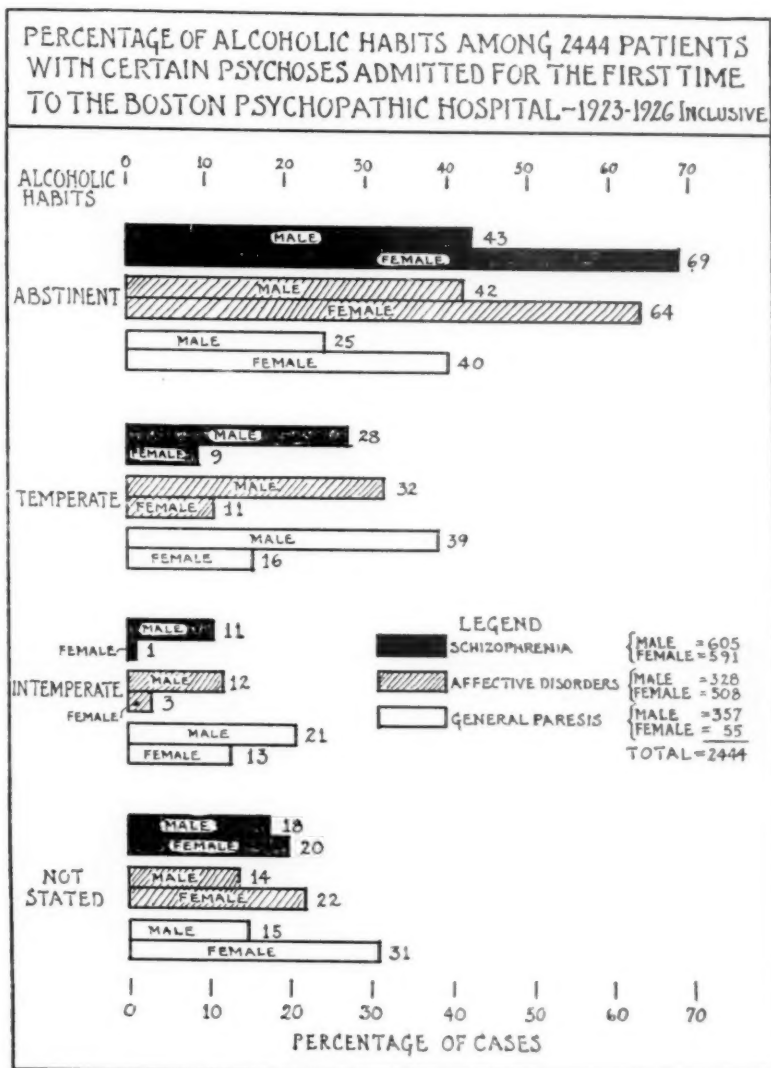


CHART 4.

Table 7 shows the number of births among 1154 female patients. The figures are essentially the same as for pregnancies. The question of the age factor would again come under consideration.

TABLE 7.

NUMBER AND PERCENTAGE OF BIRTHS AMONG 1154 FEMALE PATIENTS,
ACCORDING TO DIAGNOSIS, 1923-1926, INCLUSIVE.

Diagnosis	Number of births							
	None		1-3		4+		Unknown	
	No.	Per cent	No.	Per cent	No.	Per cent	No.	Per cent
Schizophrenia	348	59	128	22	51	8	64	11
Affective disorders	230	45	172	34	68	13	38	8
General paresis	22	40	18	33	6	11	9	16

Table 8 shows the mean and median age at admission and the mean and median age at first indication of any mental disorder.

TABLE 8.

AGE TABLE; FEMALE PATIENTS.

Diagnosis	Age of 1154 females at admission, 1923-1926		Age of 1154 females at first indication of any mental disorder, 1923-1926	
	Mean	Median	Mean	Median
Schizophrenia	34.3	33.6	29.4	28.9
Affective disorders	37.2	35.6	32.6	30.4
General paresis	43.3	42.7	42.5	42.5

According to this table the schizophrenic females are roughly three years younger than the affective females in both mean ages at admission and at first indication of any mental disorder. The difference in median ages is slightly less. The paretic group is considerably older than either of the other groups. It does not seem that this difference of three years would explain the difference in the number of pregnancies between the schizophrenic and affective females. As a further test the number of pregnancies was sorted for age at first indication of any mental disorder, using five year age periods, but no association of items was noted. The marital condition of females was then noted. Sixty per cent of the schizophrenic group are single, 40 per cent of the affective group are single, while only 14 per cent of the paretic group are single.

Again it might be asked whether the difference in ages accounts for the significant difference in marital conditions. It does not appear that the difference in ages between the schizophrenic and affective groups could cause any such difference in the percentage of marriages and even in the paretics who are considerably older, age would hardly seem to be the only factor involved.

The number of living children of both male and female patients is shown in Chart 5. The findings in regard to the number of pregnancies and births of female patients hold in a consideration of the number of their living children.

The male groups show even more highly significant differences. The schizophrenic males have fewer living children than either

TABLE 9.
AGE TABLE; MALE PATIENTS.

Diagnosis	Age of 1990 males at admission, 1923-1926, incl.		Age of 1990 males at first indication of any mental disorder, 1923-1926, incl.	
	Mean	Median	Mean	Median
Schizophrenia	29.2	28.1	25.6	24.3
Affective disorders	39.3	38.1	32.6	30.4
General paresis	43.8	43.1	42.0	41.1

of the other psychoses. When we examine the comparative ages of the groups we find that the schizophrenic males are younger than the schizophrenic females or than other males.

The marital condition of the males should also be noted. Seventy-nine per cent of the schizophrenic group are single, 43 per cent of the affective group and 25 per cent of the paretics. It would seem that for the males, as for the females, the marital condition is the important factor in determining the number of living children. One may conclude, therefore, that fewer schizophrenics have children because fewer of them marry and that one reason why fewer of them marry may be because the disease comes on slightly earlier in life. Those who do marry have as many children as do cases of affective disorder or general paresis.

SUMMARY.

A statistical study at the Boston Psychopathic Hospital of certain physical and historical data in 1196 cases of schizophrenia, with

PERCENTAGE OF LIVING CHILDREN OF 2444 PATIENTS
WITH CERTAIN PSYCHOSES ADMITTED FOR THE FIRST TIME
TO THE BOSTON PSYCHOPATHIC HOSPITAL-1923-1926 INCLUSIVE

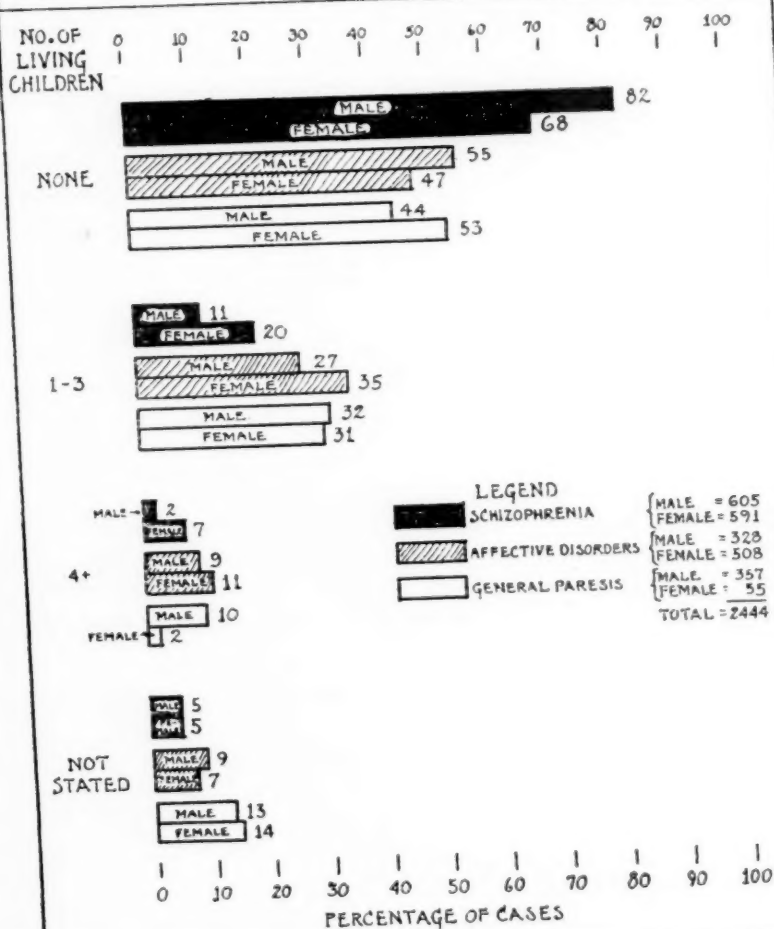


CHART 5.

836 cases of manic-depressive insanity and 412 cases of general paresis as controls, shows the following results:

The physical findings in schizophrenia are essentially the same as in manic-depressive insanity, whereas the findings in both differ significantly in many respects from those found in general paresis.

Leucocytosis is a frequent finding in schizophrenia but is equally common in manic-depressive insanity and general paresis.

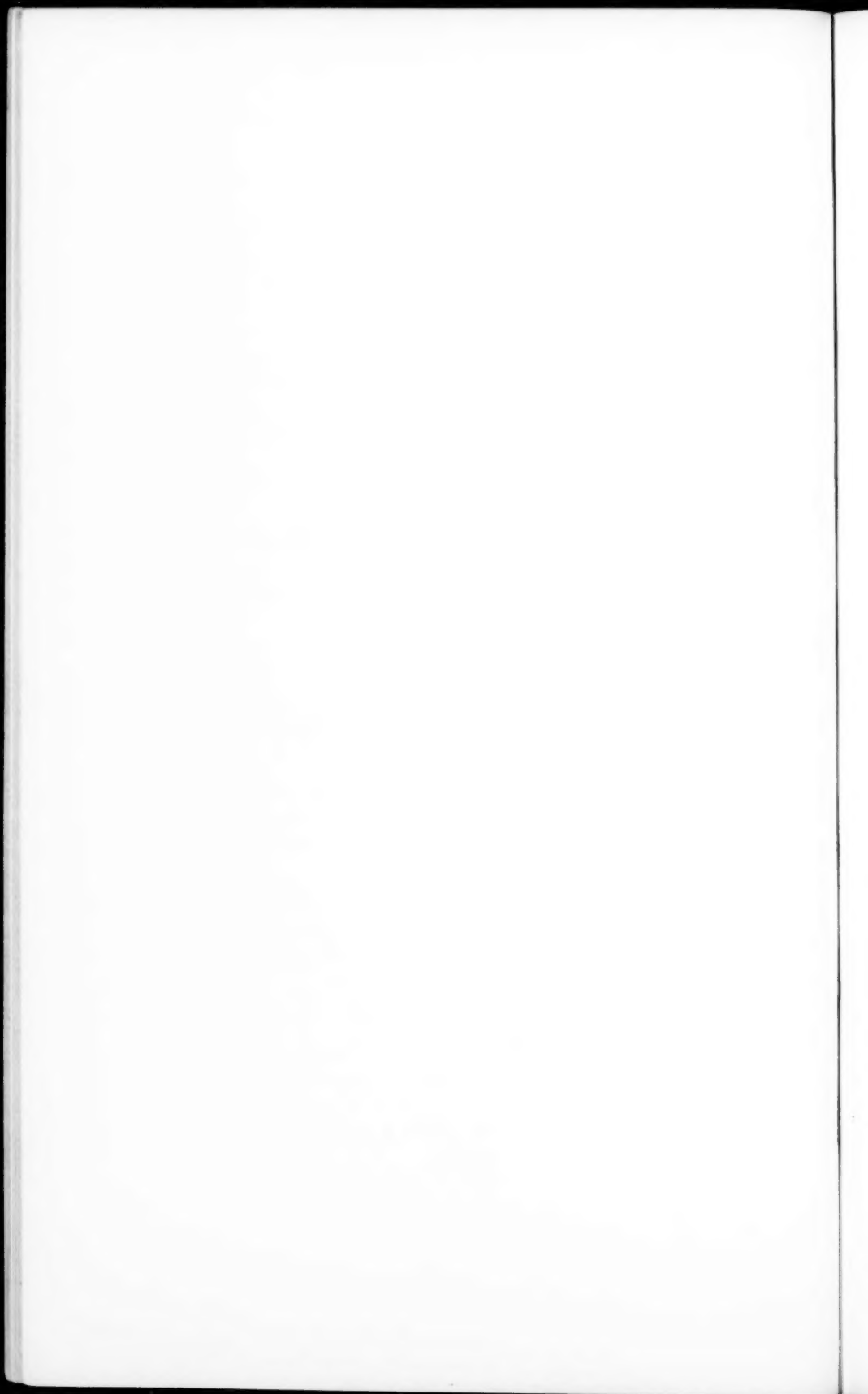
Alcoholism is infrequent in schizophrenic and affective disorders but is more common in general paresis.

Pregnancies, births and living children are fewer among cases of schizophrenia. This appears to be because fewer cases of schizophrenia marry. One reason that fewer marry may be because schizophrenia comes on slightly earlier in life. A study of the number of pregnancies among those who do marry shows that there are as many pregnancies for the schizophrenic group as for the other two groups.

DISCUSSION.

DR. GREGORY ZILBOORG (White Plains, N. Y.).—Among the schizophrenic women who had several pregnancies was there a predominance of small or large families?

DR. KARL M. BOWMAN (closing).—We found almost the same distribution of families in the schizophrenic as among the affective and paretics with reference to those who had children. That is to say there were the same number who had only one child, the same number who had two children, three, and on up. There were as many schizophrenics, of those who became pregnant, who had seven children or over as there were affective or parietic females who had seven children or over.



FOCAL INFECTION IN TEETH.*

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AND

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In recent years the relationship of focal infection to mental disorders has been a favored subject for much discussion and some serious investigation. All branches of medical practice have become involved in the problem and because of the inherent tendencies of the professions and the exigencies of their practice, surgery and dentistry have contributed much toward its solution.

Among the many possible sources of infection the teeth have aroused the greatest and most general interest. Previous to 20 years ago, the teeth and their surrounding tissues received virtually no consideration in the etiology of organic diseases. Reports of remarkable cures following the eradication of oral sepsis were at first received with much skepticism but within a decade the best medical schools were emphasizing the great importance of the teeth as a source of infection.

Psychiatrists, a little tardy in responding to the impetus of this newly found and tangible remedy, and perhaps embarrassed by much psychologizing, have not been sufficiently considerate of the toxic factors in psychoses. Furthermore their resistance has been aroused by the claims of a few enthusiasts who suggest by their presentations that they are either not cognizant or are oblivious of the complexity of the problems with which they deal.

The frequent occurrence of focal infection is granted without reservation. The pathogenicity of the micro-organisms involved is too often a matter of conjecture. The immunity to a specific infection which a particular individual may have established is seldom determined. The etiological relationship in many diseases is still obscure. The manifestations of infection, except in its acute phases, are usually indefinite and overshadowed by other phenomena. And

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

finally, therapy is applied to the more readily demonstrable and more accessible foci of infection.

These considerations are peculiarly urgent in the field of psychiatry where the etiology of "functional" personality disorders is usually based upon plausible psychogenic theories. The tendency to rigid and therefore arbitrary classification leads to a division of toxic from non-toxic psychoses. A more rational approach requires a careful estimation of the extent to which infection may have contributed to any psychosis regardless of what the clinical manifestations or fundamental mechanisms may be.

The frequent occurrence of infection in peridental tissues has been abundantly demonstrated by bacteriologic and histopathologic investigations. These studies have been made chiefly upon non-psychotic patients. The study of focal infection in psychotic patients has been chiefly bacteriologic and therapeutic and the greatest errors have been made by those clinicians who controlled the material for bacteriologic investigations and who made use of those findings which harmonized with preconceived theories.

The most frequent source of error has come from the attempt to make cultures from the apices or from the sockets of extracted teeth. Uncontaminated cultures from such sources are unlikely since the manipulation necessary in the extraction causes an immediate extravasation of sanguineous fluid from the peridental tissues. As a matter of fact most dental surgery is not done with strictly aseptic precautions. Periapical cultures obtained by special operative procedures or cultures obtained from root canals of teeth *in situ* require methods of procedure which are not practicable and the chances of contamination are too great to permit the use of these methods on a large scale.

PRELIMINARY EXPERIMENTS.

It seemed probable that conclusions could be drawn only after the examination of a large number of teeth and since the methods of examination thus far in use are not without serious objection, it was obligatory to attempt to devise some new method of procedure. A method not dependent upon the technique observed by the dentist is preferred and with this in view experiments were conducted to determine whether or not the outside of a tooth could be sterilized

without destroying the organisms which might be present in the root canal or pulp chamber.

A number of teeth with and without cavities were selected for experimentation. Phenol (5 per cent), tincture of iodine, and formalin (40 per cent) were painted on the outside of different groups of teeth and allowed to remain from five to fifteen minutes. Those painted with phenol or iodine were then washed with alcohol and all teeth were flamed to dryness. Other teeth were allowed to soak in phenol, tincture of iodine, or formalin for five to fifteen minutes and then washed with alcohol and flamed. Another group of teeth were simply passed through a flame and many were alternately immersed in alcohol and heated by burning off the alcohol.

After a tooth had been subjected to a process of sterilization as just indicated, it was immersed in broth cultures and incubated for three days or until a growth was obtained. In this way it was determined that alternate dropping in alcohol and flaming is the most effective and feasible method of sterilization.

It was then necessary to determine the amount of heat which could be applied to the outside of a tooth without destroying the organisms in the root canals. For this purpose a small hole was bored through the crown of the tooth into the pulp chamber. Teeth prepared in this manner were sterilized in a dry sterilizer and cultured to prove sterility. Known cultures of *B. coli*, streptococci and staphylococci were inserted into the pulp chamber and the artificial opening was closed by means of a sterile wooden plug. The teeth were then alternately immersed in alcohol and heated by burning off the alcohol, cultured to determine their sterility, and subsequently the wooden plugs were removed and cultures made from the pulp chamber.

It was found that in some of these teeth the organic matter in the root canals was dehydrated by the preliminary sterilization to such an extent that the organisms placed in the pulp chambers had access to the culture media in which the sterilized tooth was immersed. This difficulty was obviated by coating the apex of the tooth with paraffin after it had been subjected to sterilization by alcohol and heat.

In order to more definitely ascertain the effectiveness of this sterilization process, teeth previously sterilized in a dry sterilizer were immersed in known cultures of *B. coli*, streptococci and

staphylococci and then sterilized with alcohol and heat. With these teeth also it was found necessary to seal the root canal openings with paraffin in order to prevent the organisms from getting into the root canals and being thus protected from the alcohol-heat sterilization.

From these experiments it was learned that the external surfaces of teeth can be sterilized without destroying organisms which may be present in the root canals and pulp chambers, that it is necessary to burn off the alcohol at least five times in order to sterilize the external surfaces of the teeth, that organisms in the root canals and pulp chambers are not destroyed by this amount of heat and that they frequently survive 10 consecutive exposures of the teeth to alcohol and heat.

METHOD OF PROCEDURE.

Having made these preliminary experiments the actual work of determining the presence and variety of organisms in root canals and pulp chambers of teeth was begun. According to the principle of sterilization employed no roots or badly decayed teeth could be used. Teeth were obtained from both psychotic and non-psychotic persons and from several different sources but chiefly from the New York University College of Dentistry clinic in New York City, and from the Manhattan State and the Bloomingdale Hospitals.

All teeth were extracted with the usual precautions and were immediately deposited in sterile gauze. As soon as possible and not later than four hours after extraction the teeth were mechanically cleaned with sterile forceps, sterilized by alternately immersing in alcohol and burning off the alcohol, and then split open with a sterile tooth splitter. Whenever either instrument came in contact with a portion of a tooth it was resterilized in a flame before touching another portion of tooth. With these aseptic precautions the possibility of contaminating the tooth after extraction was eliminated.

Approximately half of the split tooth was dropped into a tube containing infusion broth, and the remainder into a tube containing 1 per cent glucose sheep serum broth. These cultures were incubated at $37\frac{1}{2}^{\circ}$ C. for three days, or until growth appeared. The large number of teeth producing pure cultures of streptococci, and

the difficulties entailed in separating and detecting those growing in mixed cultures made it seem practicable to differentiate only those strains growing in pure culture. In a few cases lactose Andrade and sheep serum plates were used for preliminary differentiation.

The method of procedure used is here briefly stated. Equal parts of the pure streptococci culture and a 2½ per cent blood cell suspension were kept in a water bath at 37½° C. for a period of 1½ hours for the determination of hemolysis. Cultures were also incubated in lactose, mannit, salicin and insulin broth for a period of at least five days to determine fermentation power.

On the basis of these hemolytic and fermentative reactions all streptococci were classified according to the Holman method.

REPORT OF OBSERVATIONS.

Observations were made upon 99 teeth from psychotic individuals and upon 120 teeth from non-psychotic individuals. In the former group 75 per cent of the teeth were radiographed. The findings are briefly summarized in the table:

This table may require some further explanation. The divisions of "Total Organisms Found" and "Total Teeth Infected" were necessary because more than one type of organism was obtained from many teeth and in some instances three different strains of streptococci were found. Therefore in recording the infection of teeth only the actual number infected is given and undifferentiated streptococci are noted only in those specimens in which no differentiation was made.

A comparison of the percentage of infection in the psychotic group with that of the non-psychotic group shows that there is no essential difference. That the frequency of infection has little to do with whether or not the person is psychotic is shown by dividing the psychotic group according to the source of the teeth. Approximately the same number were obtained from Bloomingdale (a private hospital) as from Manhattan State Hospital.* A glance at the percentages of streptococcic infection shows that the chances of this infection are four times as great in patients who go to a

* In each group the teeth were extracted as soon as possible after the admission of the patient.

Type of organism	Total organisms found										Total teeth infected			
	Psychotic										Psychotic		Non-psychotic	
	X-ray findings										Bloomingtondale	M. S. H.	Total	Total
	Apical rarefaction	Non-vital	Alveolar absorption	Caries	Unruptured	Impacted	Negative	Not X-rayed	Delayed	Not X-rayed				
Infrequens .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hemolyticus I .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Progenes	1	1	3	2	..	..	..	3	..	..	1	6	7	2
Anginosis	1	..	..	..	..	..	..	..	..	..	..	..	..	..
Hemolyticus II .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Hemolyticus III .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Equi .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Subacidus .....	..	2	2	1	..	..	..	..	..	..	1	1	2	..
Fecalis .....	..	1	..	2	..	..	..	..	..	..	..	..	..	..
Non-hemolyticus I .....	..	..	..	..	..	..	..	..	..	..	1	1	2	..
Mitis	3	..	2	8	..	..	..	5	..	..	1	10	11	..
Salivarius	2	3	4	7	..	..	2	7	..	..	4	11	15	23
Non-hemolyticus II .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Non-hemolyticus III .....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Equinus .....	..	..	..	2	..	..	1	1	..	..	1	1	2	..
Ignavus .....	..	..	..	..	..	..	..	1	..	..	1	1	1	..
Streptococcus (undifferentiated)	4	2	3	1	..	1	..	16	..	42	1	6	7	18
Pneumococcus	1	..	1	2	..	1	1	..	1	14	..	..	..	..
Staphylococcus	3	..	1	1	..	..	1	4	2	20	..	..	..	..
Bacillus	1	..	..	2	1	..	4	1	1	9	..	..	..	..
No growth	3	4	7	31	7	4	12	8	7	25	31	5	36	26
Total teeth .....	..	..	..	..	..	..	..	..	..	..	..	..	99	120
Streptococci	58	64	64	39	0	0	0	70	0	62	10	40	50	70
Hemolytic streptococci	11	21	28	5	0	0	0	6	0	6	2	9	11	10
Non-hemolytic streptococci	26	28	24	32	0	0	14	30	0	32	7	24	31	45
No growth	16	28	28	53	88	67	57	17	64	14	31	5	36	22

N. B. Delayed=Cultures not made until day following extraction.

public hospital as in those who come to Bloomingdale Hospital. An even greater percentage in favor of the latter group is shown by the relative frequency in which no growth was obtained. Hence the frequency of infection is more directly related to the care which the patient's teeth have received.

Other observations which have been made in the course of these studies may be briefly stated as follows: Pathogenic streptococci are found in the root canals or pulp chambers of approximately 10 per cent of those teeth which have no root canal exposure; in most instances the presence of dental infection may be accurately estimated by means of roentgenograms, provided that they are well made; pathogenic streptococci are found in 25 per cent of teeth which are non-vital or around which there is alveolar absorption; such infection probably does not occur in more than 15 per cent of teeth with periapical rarefaction; and finally infection with pathogenic streptococci occurs most frequently in teeth with clinical and roentgenographic evidence of marked alveolar absorption.

Some further comment should be made upon the findings in particular cases. The degree of oral sepsis frequently found in patients admitted to public hospitals is indicated in Fig. 1. In this case there is marked alveolar absorption causing exposure of one-half of the root of a non-carious incisor which communicates with a cyst at the apex of an adjacent root. From this incisor two strains of streptococci were obtained, one of which was hemolytic.

On the other hand, teeth which have been subjected to much dentistry are equally capable of harboring pathogenic organisms. This is illustrated in Fig. 2, which shows a molar tooth with complete root canal fillings and a gold crown. The fact that the fillings were forced beyond the apices may have aided in producing considerable periapical absorption. From this tooth was obtained the pure culture of streptococci shown in Fig. 3.

In a third case recognition of the prominent rôle played by infection is unavoidable. A middle aged man on his first admission in 1922 was found to have an infected molar tooth. Radiograms showed marked periapical rarefaction but there was no other evidence of infection except that he appeared to have a toxic psychosis. He improved rapidly and was removed against advice before his tooth was extracted.

In two months he returned to the hospital in approximately the same condition as was noted on the first admission. In the interval he had had this tooth extracted. During the next nine months his condition fluctuated considerably but he gradually became more confused, resistive and assaultive.

Rather abruptly he developed a swelling of the elbow and evidence of a severe systemic infection (T. 104°, W. B. C. 17,800, PMN. 87 per cent). Previous to this time his temperature and leucocyte count had been normal. Within the next month it was necessary to incise and drain this elbow and similarly infected areas in the shoulder, knee, thigh and over the sacrum. Two strains of streptococci were obtained from these areas and a hemolytic streptococcus was obtained by blood culture. He was again removed from the hospital before recovery but several months later he was able to return to business.

Four years later, he was admitted for the third time and again apparently with a toxic psychosis. His teeth were X-rayed again and it was found that a root of the originally infected molar still remained and that the infection had apparently involved the adjacent second bicuspid. The root and this bicuspid were removed and from the latter tooth a pure culture of hemolytic streptococcus was obtained. This tooth and the infected root are shown in Fig. 4.

DISCUSSION.

From what has been reported it is evident that the question of focal infection continues to merit serious consideration. That it is at times a most important factor in the production of psychoses, is an unavoidable conclusion. That it ever has any specific relationship has not been determined. These studies and general clinical experience suggest that focal infection operates as an agent which undermines personality stability and permits latent psychotic tendencies to become manifest.

In those cases in which a focus of infection is demonstrable, its eradication is often followed by the desired result. But in many cases the improvement is temporary or does not follow. Then the ubiquitous psychogenic factors begin to absorb the interest of the psychiatrist and the patient goes on alone in his struggle against infection. This almost invariably happens if there are none of the

usual signs of infection. This complacency is hardly justifiable since the usual signs of infection are present in only about 5 per cent of the cases.

At times the observation is made that a patient reacts excessively to apparently minor infections with high or prolonged temperature or even with a mildly delirious state. This cannot be regarded as simply a physiologic accident or peculiarity. It may indicate instead, a lowered resistance or a heightened susceptibility to toxins because of chronic infection, which quickly becomes manifest as a reaction to additional toxin.

Further evidence of this possibility is found in roentgenographic observations of gastro-intestinal motor functions in schizophrenia,* in which retention of barium in the pelvic colon for longer than five days occurred in over 70 per cent of acute cases. The frequently observed toxic features in the clinical manifestations of acute schizophrenia, therefore, have abundant source in colonic stasis.

The prompt and thorough eradication of focal infection need not interfere with any other form of therapy. In most instances it should be an aid. It may be that psychotherapy is often limited in its action by the handicap of undetermined chronic infection. However true this may be, the need of further search for means of detecting and combating chronic infection is urgent.

CONCLUSIONS.

1. Focal infection frequently occurs in the root canals and pulp chambers of teeth.
2. Over 50 per cent of teeth ordinarily extracted from psychotic patients contain streptococci and 10 per cent contain hemolytic streptococci.
3. Pathogenic streptococci occur with equal frequency in the teeth of both psychotic and non-psychotic patients.
4. No specific relationship between dental infection and any particular type of psychosis was observed.
5. Dental roentgenograms give accurate indication of infection in about 75 per cent of cases.

* Gastro-intestinal motor functions in schizophrenia, by George W. Henry, Roentgenologic Observations, Amer. J. Psychiat., Vol. VIII, No. 1, July, 1927.

6. Roentgenograms should be made of the teeth of all psychotic patients. Otherwise, the evidence of chronic dental infection is rarely observed.

The writers are indebted to Drs. Leo Winter and Irving Sperber of New York and to Dr. D. Austin Sniffen of White Plains, N. Y., for their courtesy in supplying teeth from the dental clinics with which they are respectively associated.

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DISCUSSION.

PRESIDENT MEYER.—I should like to ask now for comments and discussion regarding Dr. Henry's very careful study of a topic that has been discussed a great deal, that is evidently large enough in itself, as one of the propositions, to require a great deal of work and also a great deal of judgment in the interpretation.

DR. J. C. HULTKRANS (St. Paul, Minn.).—I would like to ask how fast Dr. Henry went on with his extractions, whether there was any rule as to taking out one, two or more teeth, and whether the reactions following were intensified by the number of teeth taken out?

DR. ALFRED B. OLSON (Battle Creek, Mich.).—I would like to ask whether the doctor in his study found any evidence of *Streptococcus viridans*? I didn't hear him mention that among the other infections.

PRESIDENT MEYER.—Are there any further questions? If not, Dr. Henry will kindly close the discussion.

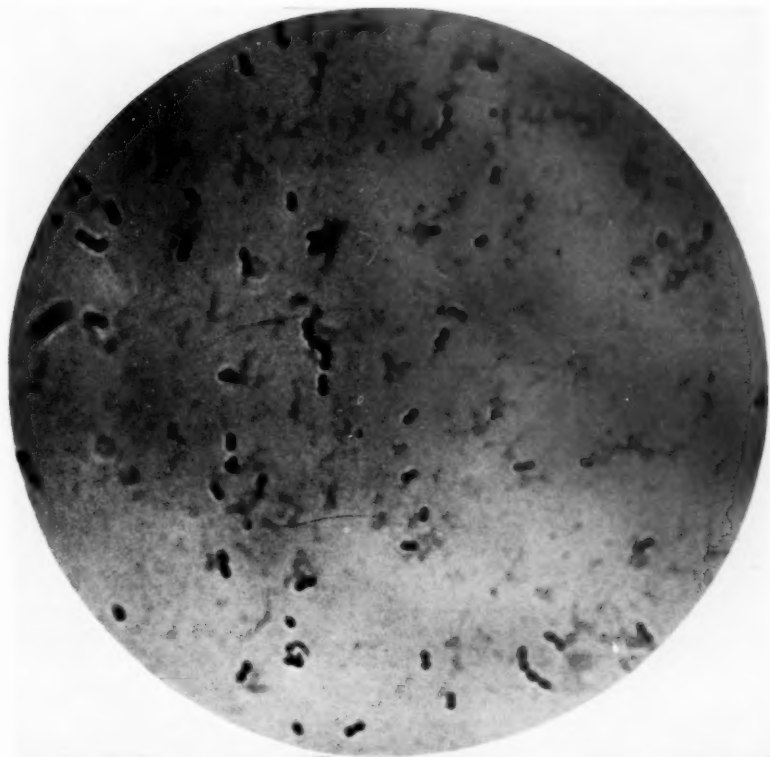


FIG. 3.—Pure culture of streptococci obtained from molar tooth shown in Fig. 2.



FIG. 4.—Infected root fragment of molar tooth extracted four years previously, with adjacent non-vital second bicuspid from which a pure culture of hemolytic streptococci was obtained.



FIG. 1.—Cyst at apices of incisor root and non-carious incisor. From the latter two strains of streptococci were obtained, one of which was hemolytic. One half of the root of this tooth was exposed because of alveolar absorption.

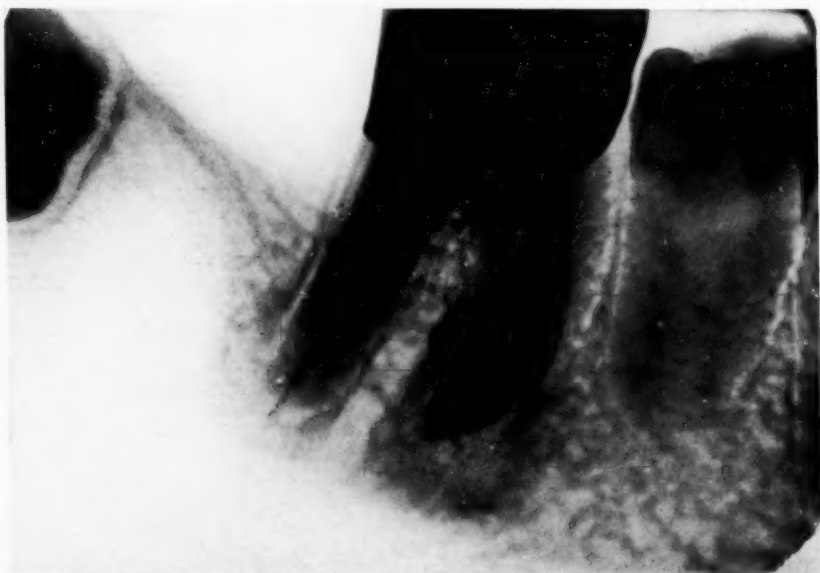


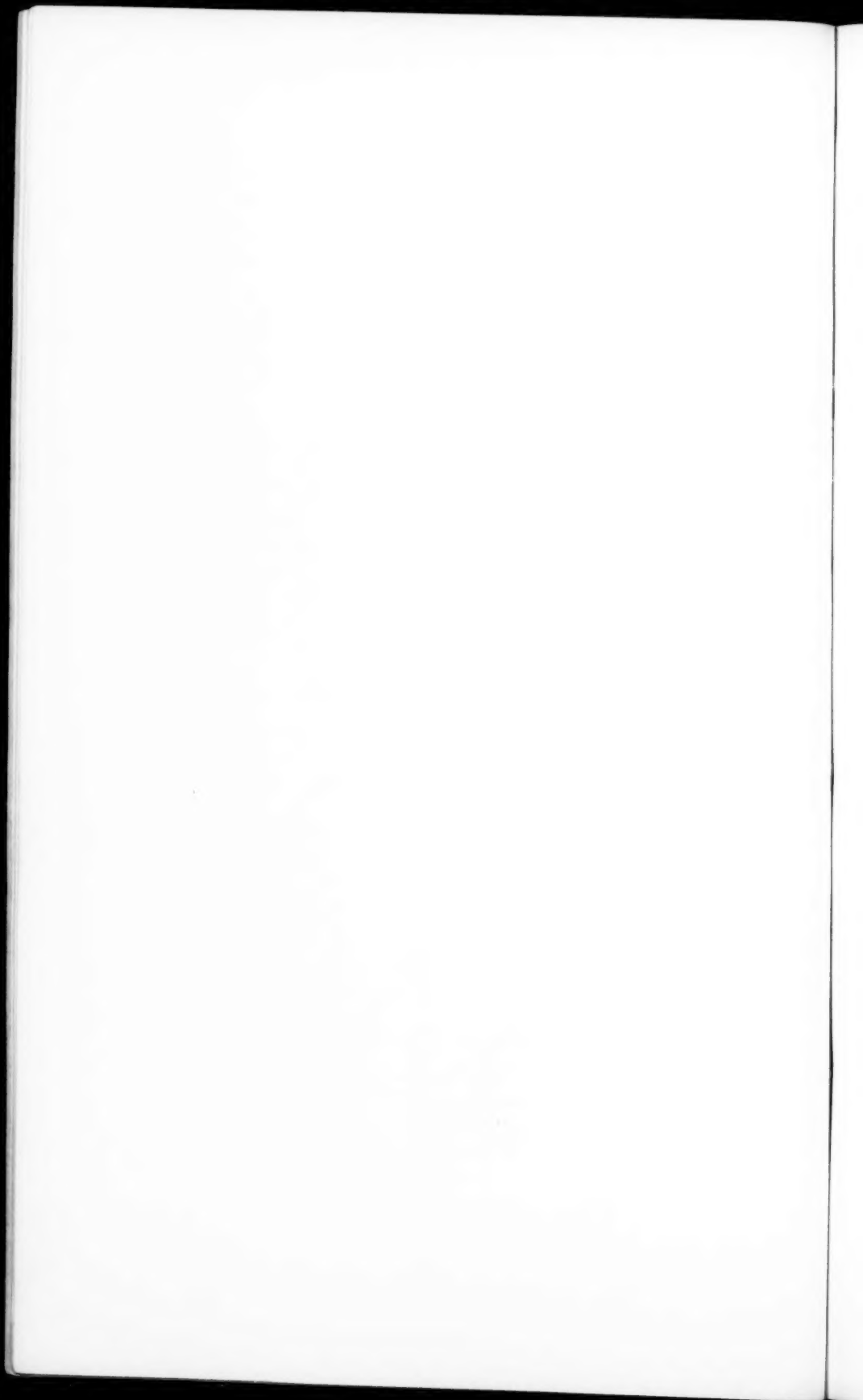
FIG. 2.—Non-vital completely filled molar showing marked periapical rarefaction. The pure culture of streptococci shown in Fig. 3 was obtained from this tooth.

DR. GEORGE W. HENRY (White Plains, N. Y.).—I am quite sure the rate of extraction, or the number of teeth extracted, has nothing to do with whether or not organisms are found.

DR. HULTKRANS.—Was there any particular care not to take out too many at one time?

DR. HENRY.—I left that entirely to the dentist. I was interested in whether or not organisms were present. The usual precautions were taken. As soon as the teeth were extracted they were immediately received in sterile gauze and were not touched by anything that was unsterile from that time on. Any instrument used was sterile. As soon as it touched the tooth it was flamed before it touched the tooth a second time.

In the studies made thus far, strains of hemolytic were differentiated from those of the non-hemolytic group, and the method used did not include viridans differentiation. It is planned, however, to include this group in future studies.



PSYCHOANALYTIC MECHANISMS IN CLINICAL PSYCHIATRY.*

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The question of whether the behavior of the psychotic individual admits of an insight either in the form of an understanding or of a logical deduction from other experiences or situations, is not alone of historical interest. The idea that this form of behavior admits of classification and description only, has not altogether given way to dynamic concepts and even now there are many psychiatrists whose attitude could be expressed in the statement made at a recent psychiatric meeting by a prominent and representative psychopathologist that: "schizophrenia is an organic brain disease, not deducible, not understandable as a flight from a life conflict into a psychosis. . . ."

It is not my purpose to go into a discussion of the problem of whether the insight into the behavior of the psychotic would lead to ultimate *understanding* or to mere logical *explanation* of it. The scope of this paper would not allow a complete discussion of this problem (in the sense of Dilthey's antithetic relationship of these two concepts).

In my discussion of the applicability of psychoanalytic principles in psychiatry I would rather limit myself to discussing the validity of this procedure as a method that would further our insight, leaving it open for future discussion as to the category this insight would belong to. Two such methods have, within recent years, made their way into clinical neuropsychiatry, and although theoretically these two show a wide divergence, they are, nevertheless, from the clinical standpoint intimately related to one another in a sense of being mutually supplementary. These are the *psychoanalytic* and the *form-(Gestalt)-psychological*, and it seemed to me that the practical applicability of the first could be best approached by a brief presentation of the second. To the neuropsychiatrist, the principles of Gestalt psychology can be seen most clearly in the attitude taken by two of its most important clinical exponents, Goldstein

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

and Weitzsaecker. Briefly, even if not altogether comprehensively, their attitude is somewhat as follows: the behavior of human beings, whether in health or disease, at any stage of their phylo- or ontogenetic development must be looked upon as the reaction of the whole organism in a certain environmental setting. This principle remains the same where the organism (*e. g.*, in some organic conditions) is functioning minus part of its original equipment. The reaction is always that of a whole (and in this respect unchanged) organism so that with Weitzsaecker: "we may describe this wholeness or 'Gestalt' function in this manner: the nervous substance behaves in such a way that with the loss of some of it we do not turn into a torso, but into a new whole—in other words, physiologically we are incapable of becoming a fragment." Furthermore, we do not deal with disintegrated function, but with a change in function. At any given stage in the development of the individual, or in regression and regeneration of function due to some defect, we are not dealing with simple arithmetical subtraction or addition from or towards a whole, but with metamorphoses of such wholes. Thus the motor aphasic is not simply an individual who is minus the ability to name objects, the person with ataxia is not one who has simply lost the ability to coördinate certain movements, but in both cases a whole organism is adapting its reactions in a certain environment under new conditions, all of its functions undergoing a change in this process.

In psychiatric personality studies this attitude would imply that disease is not due to a simple addition or subtraction of some part of the whole personality;—it is not due to a disintegration of the whole into its parts, but out of one type of reaction a new one has evolved. In other words, instead of Weitzsaecker's metamorphosis of function, we might speak of metamorphosis of personality. From this point of view, then, we must look upon the behavior of the psychotic not merely as an isolated and totally strange occurrence, but as a reaction of a certain type of personality to a situation, a reaction which in principle is the same as that of a so-called normal person, even if its adequacy may be considered inferior to that of the normal when gauged by the standards established for the normal.¹

¹ An attitude which has also been emphasized as supplement to their dynamic concept by the Adolf Meyer School.

The study of human behavior, however, does not concern itself with the reaction of an organism at a given time only. Granted that each experience or reaction has its peculiar setting or Gestalt, its special "oneness" of occurrence as contrasted with what goes before and after it, there still remains that something which persists through the constant current of change—that which lends a person his individuality. Besides the Gestalt relationship, which in the above sense must be regarded as static, there is, we might say, an inter-Gestalt relationship which lends the background to each one of these settings. A given situation must have evolved out of a previous one, whatever the causal relationship. And so to gain insight into the behavior of a personality we will have to appreciate, besides the setting, the evolution of it. It is here that the psychoanalytic method has rendered its most useful service in the understanding of the psychoses.

Direct contributions to the study of the psychoses by Freudian psychoanalysts are few in comparison with their work in other fields. The works of Freud (beginning with the analysis of the Schreber case and mourning and melancholia) and Abraham (on the manic-depressive psychoses) form the starting point for a series of studies on the various aspects of psychiatry by the exponents of this theory. Recently Schilder has given us a more systematic presentation of a psychiatry on a psychoanalytic basis and in my discussion I will follow essentially his line of reasoning.

From a psychoanalytic point of view, psychotic behavior can be regarded generally as a resultant of conflicting reaction tendencies in response to a difficult situation. When the individual is called upon to adapt himself to a new situation which offers obstacles that are particularly difficult to overcome, he may not respond with a reaction that we would consider as an adequate one, but with some substitution. To obtain such a substitute he will have to draw upon methods previously employed, and apply them to the new situation, *i. e.*, the individual will regress. Thus we come to the nucleus of the psychoanalytic interpretation of the psychoses, that is, that of regression.

To understand the psychoanalytic concept of regression, we must have a definite knowledge of its theory of development. So much has been written on this theory that a complete review would be

impossible considering the time, and hardly necessary. A brief mention of the outstanding features, however, would probably facilitate the appreciation of the points I wish to make, and so I will present these, chiefly along the lines followed by Schilder. As the basis of this outline we might consider the statement recently made by Freud that psychosis (including the manic-depressive group—Freud's narcissistic neuroses) is due to a conflict partly between the ego and its ideal, partly between the ego and the outside world, and we will concern ourselves particularly with these components in our discussion of the individual's development. The mainsprings of behavior in light of the psychoanalytic theory are the instinctive tendencies of the individual (*Triebe*) and it is along these lines that his development should be studied.

Originally, psychoanalysis recognized ego instincts and sexual instincts. The ego instincts are those that make for self-preservation and the adaptation of the individual to his environment. These occasionally come into conflict with the sexual instincts which demand, at times, conditions that are not sanctioned by the ego. This fundamentally true concept, however, could not be considered sufficiently comprehensive and a new component which served as a bridge between the ego and sex instincts, *i. e.*, narcissism, was added. When we speak of the development of the instincts, however, we mean the development of their relation to objects, for an instinct has as its prerequisite an object. How can we define objects and reality from a psychoanalytic point of view? Reality is regarded as a projection; in other words, object perceptions are projected sensations. Whether or not a stage in the life of the embryo exists when sensations alone, without corresponding perceptions, are possible remains open to question. Although we can hardly feel ourselves into such a situation, we may theorize on it, and then on the basis of it build up the concept of a primary narcissism. By this we would mean that sensations not being as yet definitely projected outwards, and therefore not admitting of an outside world, draw the libidinous instincts into the body of the foetus. A recognition of outside stimuli as conditioning these sensations would be gained through primary projection into those parts of the body that are responsible for the occurrence of the sensation, and so this primary narcissism is soon split up into the autoerotisms. As the

individual develops and begins to get a more comprehensive knowledge of his body as a whole, these are reconstructed into a secondary narcissism, that is, a libidinous occupation of the whole body. This secondary narcissism, however, is directed not only unto the *ego*, but also the *ego ideal*.

Let us consider the structure of this component. With the recognition of objects in the objective world as such, the necessity of evaluation of this outside world comes up, an evaluation which is fundamentally concerned with the gratification of the ego and sexual instincts. As the individual grows and develops, meets with success and failures, and realizes his short comings, that is, his inability at times to cope with environmental demands, he creates, side by side with the general concept of his own body and abilities, that of an ideal that would be master of the situation, that is, he creates an *ego ideal*. This ego ideal then, originating as a substitute for the ego, draws unto itself part of the narcissistic tendencies that were originally occupied by the latter. The structure of the ego ideal is a very complicated one, and of different dimensions. Quite naturally the child in building its ideal, because of a desire to overcome obstacles in the environment, will consider those who are felt to be masters of the situation at any particular time as worthy to be emulated, and so the father and mother will be the corner stones of such a structure. In dealing with environmental difficulties, however, the child will at times have to forego its wishes, being made to do so by those persons who serve as the model for this ideal. In other words, the child will have to adapt itself to certain environmental (society) demands (cleanliness, etc.). And so the ego ideal gains the quality of judge or repressor. The principle whereby the ego ideal is built up is essentially that of identification. The persons who represent these ideals are thus partially or completely taken into the personality and become part of it. At different stages of the development, of course, the ideal of adequate reaction changes, and so different parts of the same person (father, etc.) may be desired or emulated, and also regarded as representative of environmental demands. The ego ideal therefore will consist not only of the different models but also of different stages of the same model representing less and more highly differentiated ego ideals. Furthermore, different persons may represent one en-

vironmental demand to the individual (*e. g.*, father and mother both stand for demand of cleanliness, etc.), and thus give rise to impersonal ego ideals, whereas other models may give rise to very specific structures in it.

From what was said before, it would appear that the clear-cut differentiation between subject and object, or ego and outside world of the adult is not as yet present in the developing child. (This has also been observed by students of child psychology as well as in organic brain lesions where there were regressions to more primitive reactions. A similar disregard for subject-object differentiation is also met with in the study of primitive races.) In the child then the recognition of objectivity (even if we should assume such in the early stages too) is a very imperfect one, and the differentiation between subject and object a rather vague and indefinite one. A field of undifferentiation between subject and object is, of course, present even in the adult, a field which is regarded as belonging to the subject. Outside of its limits, however, a clear-cut objectivity of the outside world develops as the child grows and the ability completely to identify oneself with objects becomes more difficult. The more highly differentiated ego ideals therefore developing later in life will correspond to a more complete recognition of objects as such. With incomplete differentiation between subject and object there is an approximation of wish and its fulfillment, and the individual may regard the model for his ideals as capable of gratifying all those desires which it has. It thus considers the father, for instance, as possessing magic powers because such magic powers would be the most efficient methods of gaining mastery of a given situation. This process can be looked upon as a projection of subjective contents into the outside world, and as closely related to hallucinations.

The ego ideal, being the model adaptation, furnishes the repressing influences over both ego and sex instinct cravings, to render the actual behavior compatible with environmental demands. More highly differentiated ego ideals may, furthermore, repress those of earlier stages, because, as the child develops, some aspects of the latter become incompatible with the new environmental demands. These are partially repressed into the unconscious, whereas the components that do not come into conflict with the new ideal form

the conscious representatives of repressed ideals. The ego ideals then range and coördinate the different tendencies of the whole personality, deciding which of these can be expressed and gratified openly and which are not to appear in conscious behavior. We have only touched upon one of the very earliest stages of development, the narcissistic. As the individual develops, of course, he goes through different stages. Following the primary narcissistic, there are the auto-erotic (see Abraham), then the stage of secondary narcissism out of which the homosexual component develops, and then gradually the appearance of the adult attitude to life. Any stage of this developmental series may, for one reason or another, become accentuated and remain as a weak spot in the person's development, so that if at any time during the subsequent development environmental demands become so difficult that the person cannot meet them in a form adequate for that stage, the instinctive cravings of the person in being dammed back will quite naturally break through at this point of least resistance (fixation point), and the person will adopt methods of a primitive stage in dealing with the environment of an adult individual. (With the Gestalt school we will also say that if this regression should seem to affect one particular component, *e. g.*, the sexual, the whole organism will respond.) The bonds of the ego ideal and outside world will be broken and a psychosis will result.

The reaction, however, is not the same as that of a child of that stage because, primarily, environmental demands are different, secondarily, the series of ego ideals intervening between the last stage and the one at the fixation point cannot be totally disregarded. As the individual beats his retreat through the various stages to the primary fixation point, he will mark the different stages of development by methods of reaction more or less sanctioned by those ego ideals, until finally he reaches the fixation point. The actual disease process, *i. e.*, the regression, thus accomplished, the patient enters the second stage, that of trying to adapt infantile patterns of reaction to the environment of an adult. The outside world is regained by a new series of ego ideals; these, however, hampered by infantile tendencies will appear distorted and, to our point of view, inadequate. Depending upon the level of regression as well as the individual evolution and setting, different reaction types (symptom

complexes) will be established, the principle, however, remaining the same in all cases. To illustrate, let us quote the following case:

A single man aged 27, on admission. At the age of 16, following a conflict with his parents, he left home never to return there. He had taken up the occupation of a cook at which he worked well until shortly before admission. Following a period of auto-erotism in early adolescence he has had several shortlived heterosexual attachments. He would invariably leave the girl because she became too exacting and wanting "to tie him up" to her. During his last adventure he felt that the girl made him "weak sexually." On several occasions he was unable to go through with the sexual act. He felt himself growing weaker, and smaller. A correspondence course with Bernard Macfadden proved unsuccessful and so did a short period of heterosexual excesses with prostitutes. He reverted to auto-erotic practices and soon developed the idea that people thought he looked weak and like a "fairy," his "nose was drawn out, cheeks sunken in," etc. Numerous other hypochondriacal ideas developed and when he was admitted he had the feeling that he was gradually "wasting away" and was going to die. This "death," however, was not physical. His "feelings" were dying—the taste of the food, his interests in other people, in the world in general, were "dying." His condition became gradually worse and finally culminated in a state of acute excitement with confusion, resistiveness and periods of mutism. His recovery from this, according to his statement, was brought about by a group of "telepathists" whose leader he associates, at times, with his father, at others with the hospital supervisor. They began to "send messages" just about the time of the excited period. At first they were strict with him, scolded and accused him of perverse acts (homosexual and auto-erotic). Gradually they became more kind in their attitude and finally informed him that they were planning to take him out of the hospital and that outside there were various very important missions waiting for him.

Now he is quiet and fairly coöperative, although he shows rather childish methods of planning for the future. He is not quite sure what his work outside will be, but he is certain it will be of great importance, and that he will become a leader of mankind.

Here then we see the primary regression in face of a difficult environmental situation, the gradual withdrawal of libidinous or affect relations to the outside world, culminating in the acute stage which may represent a regression to a narcissistic level. Out of this, the patient emerges with a development of a new adjustment to the world, built up on an early form of ego ideals, in which the subject-object split is not definite. The model for this ideal is represented by an almighty father endowed with magic powers, and by identifying himself with his father, he becomes the master of magic powers himself.

Time does not permit the presentation of other cases for further illustration of the applicability of this method of approach to the understanding of behavior in this and other forms of psychoses. For such material I would refer to studies made along these lines by Schilder and co-workers, Abraham, and others. For this reason too I cannot go into discussion of the psychoanalytic views relative to the possible etiology of the psychoses. I might add, however, that psychoanalysis maintains the attitude that whatever the relative importance of organic causes (and it considers them highly probable) may be, the facts in terms of behavior phenomena must and can be rendered intelligible to psychological approach.

An insight thus gained is of more than didactic value. With the gradual accumulation of empirical data pointing to the important rôle played by psychogenic factors in the pathogenesis of the psychoses, this method in giving us an insight into the psychology of the development of the process opens up a new field for therapeutic and preventive medicine. In extra-mural work with persons whose problems have not brought them to a hospital or where a readjustment is to be attempted after an acute disturbance, an understanding of the handicaps under which the patient is working and his own inadequate attempts at reconstruction offers a starting point for our own efforts. It is in our work within the state hospital however, that the value of this method of approach is particularly strikingly demonstrated.

The attitude that phenomena of psychotic behavior are primary, non-deducible and unintelligible structures; the use of methods that disregard the relation of the phenomena to the evolution and totality of a given situation just help to maintain, if not increase, that wall of isolation that the disease process has built up around the patient. Such structures are abstractions, not realities. An occurrence in a human life, be it in health or disease, must always be regarded as an interaction between a special personality and a given environmental situation. It is this attitude more even than any particular theoretical aspect that makes the psychoanalytic or any allied method so valuable in clinical psychiatry.

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DISCUSSION.

DR. C. P. OBERNDORF (New York, N. Y.).—It would be out of place to expatiate upon the complicated theory of Freud at this time, especially as it has been indicated so well by Dr. Malamud. However, he does bring up the question of the intramural practice of psychoanalysis which it seems to me is a very vital issue in psychiatry. Many of the more progressive hospitals are now introducing a well trained psychoanalyst as an adjunct to their therapeutic armamentarium. By this I do not wish to imply that prior to the advent of psychoanalysis no attempts were made at psycho-therapeutics in state hospitals but that many cases which were amenable to psychoanalytic treatment were neglected.

Many tributes have been paid to Dr. Meyer here today. However, I think no one has mentioned Dr. Meyer's very profound influence in the introduction of psychoanalysis into this country, especially at the New York State Hospitals.

There is a certain type of case that does not need active hospitalization, that, however, does not get along very well in its customary environment. It seems to me that one of the next steps in the mental hygiene program must be the establishment of a boarding house or a hotel of some kind by the state where patients can continue at their work and still be treated along psychoanalytic lines. In the closed institutions there are a great many patients at the borderline stage between neurosis and psychosis who are compelled to be confined with patients who are annoying to them, and who feel humiliated at being in a closed institution.

If in the future the state should provide for some sort of a residential institution for the borderline patients to be treated analytically in out-patient clinics which are increasing numerically all the time, a great need would be served the community.

DR. GREGORY ZILBOORG (White Plains, N. Y.).—I think one point was emphasized perhaps too little, and that this is that the present psychoanalytic formulation with regard to psychoses, present a series of theoretical assumptions, at times corroborated by clinical observations, and at times not yet borne out by clinical facts no matter how sound the formulations are.

If therapeutic approaches of an analytic kind are to be used in psychoses, research problems must be approached with the idea of verifying, corroborating, or refuting, perhaps, certain of the theoretical premises. The psychoanalytical literature needs more psychiatric material. Purely interpretative works like Schilder's and others point out that it is easier to understand the psychotic on the basis of psychoanalytic dynamics, but they do not prove as yet that psychoanalytic therapy could be jumped into without a sufficient amount of purely clinical, observational research material.

I think either these processes, research and therapy, ought to be parallel, or the research work ought to be a preliminary step to an active psychoanalytical undertaking. Otherwise, our own therapeutic mistakes or our own therapeutic failures might discourage us unnecessarily in the possibility of finding perhaps a possible new truth and, on the other hand, we might fail to appreciate some results that otherwise might prove highly valuable.

PRESIDENT MEYER.—I do feel an impulse to say something in this discussion, although to my great regret I did not hear the whole paper because I was called out. One thing is this, that to an audience that does not perhaps know how to differentiate between psychoanalysis and psychopathology in general, it is very important to make clear that the point of view that is basic in the work that Dr. Malamud referred to, and which he identified with the Gestalt psychology, is not limited to a static attitude.

It is perfectly true that in all my work I have always recognized the unit, the biological individual, the biological organism, and various other sub-units. But there is always a dynamic conception, and not a conception that neglects the evolution or the devolution, if you want to speak of it in that way.

There is also a realization that in the patient there are conditions which reduce the individual to levels that we like to claim as regressions to earlier developmental forms, merely because we do not like to think of what may become of us when we get older, or when we get sick, or when we get senile, and so on. That apparently is not quite enough of an impressive experience for us to accept as such. If we do not come up to the standard of our ordinary living, then we like to talk of it as "regression." Those are analogies which are valuable and may be suggestive. My own tendency would, however, be that towards concreteness. Most of the "regressions" are regressions only in the sense of analogies valid only in few disorders.

I prefer to take the fact as I find it. Get it into such description that it stands before you as an experiment of nature with all the factors that may be at work, with all the limitations that are inherent in the human being, and the inherent limitations that come through the transformation of the chemistry of tissue changes, as well as of the social adjustments within which the organisms has to operate, or whatever it may be.

Much of this, I claim, has nothing to do with psychoanalysis, and I should like to have that clearly understood that in a way we have to recognize that psychoanalysis is only a limited field within psychopathology and psychiatry. Psychoanalysis has used dynamic conceptions, to a very great extent, from the very beginning, and that has led me to open a very wide door, and to keep open a very wide door to anything that psychoanalysis does. But I should like very much to emphasize the fact that we must not, because there are things in common, allow ourselves to call all forms of dynamics psychoanalysis, for psychoanalysis, after all, is a very definite theory of disease, operating very largely with a hypothetical unconscious, and not a general psychopathology or psychiatry. Some of us prefer not to do very much more with the so-called unconscious, but to work very much more with the facts as we find them.

Psychoanalysis very definitely teaches that we should not treat "symptoms." The dynamic psychology that I use does not talk of symptoms; it talks of reactions that we want to understand and readjust in one way or another. We positively go for that which others discard, because they want to treat only the transference reactions. I look upon symptoms, so-called, as manifestations, as reactions of the individual, which contain with reasonable certainty that which we want to go for. Therefore I like to pick out the abnormal reactions as I find them, with their setting and their content.

I admit that for didactic purposes and, very often, for therapeutic purposes, in dealing with one or another type of patient, it is perhaps easier to make headway with a hypothetical system, and as long as it is recognized as a hypothetical system, which works with the erotic reaction of the individual on the ground of the transference, it uses a tremendously valuable asset, just as some physicians use the reduction of pain with morphine and opium without thereby assuming they have established a special method to reach the illness, but create conditions for easier adjustment. It is one of the means of getting better access to the facts. Psychoanalysis is fundamentally something which we physicians use in various ways, but so specialized that it limits itself to the erotic transfer reaction. That is the thing which is then studied. It is a production of a condition, the study of which helps us to help the patient adjust himself, and to meet, incidentally, the situations that are contained specifically in the so-called symptoms.

There are in connection with psychoanalytic theories many hypotheses which are exceedingly stimulating, and which, as I say, very often work to great advantage with certain types of individuals, but I should feel heedless of my psychiatric conscience if I did not emphasize the fact that we are here in Psychopathological Association confronted with quite a number of points of view, and quite a number of points of procedure and that psychoanalysis is only one set of methods and hypotheses. What Dr. Malamud has discussed is the introduction of one system of theory and its application. I think some of us are justified, more or less, in warning those who might not be quite familiar with the thing, that after all we ought not to think of "the" new psychology. There are many new psychologies. We must not

think that because twenty or thirty years I said so-and-so, I should be eternally identified just with that one thing. There is a growth in psychodynamic conception, just as there is in the specialized aspects thereof. Therefore I should not like to have the idea prevail that we had discussed a point of view of psychodynamics which is nothing more than Gestalt and that we should now get the point of view of psychodynamics which is psychoanalysis. What you have discussed is the application of Freudian psychoanalysis to psychoses, and that is a very important issue, discussed in a way for which, I am sure, the Association is very grateful.

I should like very much that sometime it might be possible to get in connection with the same sort of observation and material the relative procedures and the extent of use of hypothesis and extent of use of plain facts illustrated side by side.

Some years ago in the Psychopathological Association I tried to bring together a group of men who would discuss patients they had studied and treated independently, and would discuss and illustrate therewith their procedure, and then have a discussion of various procedures following that. It seems to me that would be a very important and helpful way to bring the relative methods of psychoanalytic procedure and the various other procedures side by side.

DR. WILLIAM MALAMUD (Foxborough, Mass.).—I do not believe that simply recording facts without any definite idea to guide us in orienting ourselves in the multitude of possible experiences is the ideal method of experimental investigation. This, at least, was the underlying principle in the attitude of Galileo, the father of the experimental method. This is, to my mind, the true inductive method and to this extent, too, psychoanalysis has made use of ideas. To say that the psychoanalytic work in the field of the psychoses represents only theory and no practical case studies, however, would be a gross exaggeration. The first contribution to the psychoanalytic interpretation of the psychoses, in fact, was the analysis of a case (Schreber). Schilder, Abraham, Stürke, White, Jelliffe and others have all contributed numerous detailed case studies.

I am grateful to Dr. Meyer for his further elucidations of the subject I was trying to present. In identifying Dr. Meyer's point of view with that of the Gestalt school I referred to only one aspect of Dr. Meyer's attitude. In my criticism of the adherence to a static psychiatry, I had in mind the attitude of Gruhle, whom I quoted at the beginning. That Dr. Meyer has introduced into the study of the psychoses more than a Gestalt point of view goes without saying as he has always emphasized the dynamic value of the reactions of the patient. I agree with Dr. Meyer in that psychoanalysis is not the only method of approach. I hope I have not conveyed that idea. I have attempted to show that psychoanalysis is one of the methods that start out with the attitude, which I think is the right one, that is, that the behavior of the psychotic person can only be understood on the basis of the evolution and totality of the situation.

Notes and Comment

CORRECTION.—Through misapprehension Dr. Adolf Meyer in his Presidential Address at the Minneapolis meeting of the Association, published in the JOURNAL, July, 1928, stated that the editorship of THE AMERICAN JOURNAL OF INSANITY rested at one time upon Dr. Bannister, of Chicago.

The facts of the case are as follows: At the annual meeting of the Association in 1894, the purchase of the JOURNAL from the managers of the Utica, N. Y., State Hospital was authorized and Drs. Edward Cowles, Henry M. Hurd and Richard Dewey were appointed an editorial committee with Richard Dewey as Managing Editor.

The publication office of the JOURNAL was transferred from the Utica State Hospital, where it had been published for fifty years, to Chicago, where for three years Dr. Dewey filled the editorial chair with signal ability. Dr. Bannister was never connected with the JOURNAL.

At the annual meeting of the Association in 1897 Dr. Dewey reported that he was no longer able to carry on the editorial work because of the pressure of other duties and a new editorial board was appointed by the Council. This board consisted of Drs. Henry M. Hurd, G. Alder Blumer, G. Montgomery Mosher and Edward N. Brush.

Dr. Hurd became Editor; the JOURNAL was brought to Baltimore and its publication placed in the hand of the Johns Hopkins Press, the publication agent of the Johns Hopkins University. Shortly afterward Dr. Charles K. Clarke, of Toronto, Ontario, was added to the Board to represent Canada.

In accepting Dr. Dewey's resignation, the Association did so with regret, and a committee of the Council, Dr. T. O. Powell, of Georgia, President of the Association, Dr. John B. Chapin, of Philadelphia, and Dr. Henry M. Hurd, presented a memorial to place on record, on behalf of the Association, "its hearty thanks for the fidelity and ability with which he has discharged the difficult

duties of the position during the past three years. It is, the memorial continues, most fortunate that THE AMERICAN JOURNAL OF INSANITY has had his able direction and successful management in this formative period of its history."

This committee upon the authority of the Association procured a beautiful and massive repoussé silver pitcher which was suitably inscribed and presented to Dr. Dewey at the meeting in 1898.

We have gone into this matter somewhat in detail because Dr. Dewey's very valuable services to the Association during the first years of its ownership of the JOURNAL are too often overlooked.

Dr. Dewey's many friends will rejoice on learning that he has, as we learn by letter from him, made "a good recovery" from a serious operation for ruptured pyloric ulcer, which he underwent within the past few weeks.

Association and Hospital Notes and News.

THE EIGHTY-FIFTH ANNUAL MEETING OF THE AMERICAN PSYCHIATRIC ASSOCIATION.—The members of the Association have received the preliminary program of the meeting in Atlanta; but we feel that a repetition of some of the statements therein contained will be advantageous.

The meeting is to be held at the Atlanta Biltmore Hotel, Atlanta, May 13, 14, 15, 16. As the American Association for the Study of the Feeble-minded, the American Psychopathological Association and the American Psychoanalytic Association are to hold their annual meetings in Atlanta during the same week we urge upon those contemplating attendance at the meeting to make their hotel reservations promptly.

From Dr. Owensby, Chairman of the Committee on Arrangements, we learn that special efforts are being made to make the Atlanta meeting a marked success. Those in attendance will meet with many expressions of southern hospitality. There are to be receptions, teas, sight-seeing tours and a southern barbecue with an entertainment by the Big Bethel Choir.

From the preliminary program it is evident that the Program Committee has been active. There are 27 names on the preliminary list of readers and others will no doubt appear on the final program.

Dr. Owensby and his associates are endeavoring to extend the influence of the Association for the benefit of the general practitioners of Atlanta and vicinity, and to bring to the aid of the legal profession, teachers and social workers, members of the Association interested in their various fields of endeavor, who will be invited to address local medical societies, the bar association, teachers and parent-teachers associations. A call to extend this service as far as Birmingham, Alabama, is, we understand, in contemplation.

No better service could be rendered the public, the medical and legal professions and those engaged in teaching and in social work than can come to them from members of the Association, in the way of talks addressed to the solution of their problems from a psychiatric point of view.

Some years ago the late Dr. Henry R. Stedman, of Brookline, Massachusetts, made the suggestion at one of our annual meetings that at future meetings of the Association a member be selected to give an address upon some psychiatric subject, particularly, as we recall, as related to the public, to which the public was to be invited. Dr. Stedman's suggestion met with approval, but though a committee was appointed to arrange for carrying out the suggestion, nothing resulted.

Psychiatry touches the life of the community at so many points, that the Association can perform no better service than by accepting any and every opportunity to get in contact with the people in some such manner as is suggested in the proposal of the Committee of Arrangements.

The wide spread and growing interest in the mental hygiene movement is an apt illustration of the readiness of the community for advice and aid.

Atlanta and its vicinity have much of interest for the visitor. The time selected for the meeting, the middle of May, is propitious and we urge upon the members of the Association to make prompt plans for attending the meeting.

Since the preliminary program was sent out an agreement and suggestions have been received regarding railroad fares from the Trunk Line Association, which should be carefully read by all.

The reduction in railroad fares in this agreement, it is to be observed, will affect a somewhat limited area. *It is expected that similar arrangements will be made by other passenger associations, and members not residing in the area mentioned, contemplating attending the meeting should make inquiry concerning such arrangements in time to secure the proper certificates, in case such arrangements for reduction affects their territory.*

The following arrangement and suggestions are those referred to above:

SUGGESTED ADVICE TO MEMBERS OF THE ORGANIZATION RESPECTING REDUCTION AUTHORIZED ON THE CERTIFICATE PLAN FOR BENEFIT OF MEMBERS AND DEPENDENT MEMBERS OF THEIR FAMILIES.

A reduction of one and one-half fare on the Certificate Plan will apply for members attending the meeting of American Psychiatric Association, American Association for Study of Epilepsy, American Association for Study of Feeble-mindedness, American Psychoanalytic Association, American

Psychopathological Association, and American Orthopsychiatric Association, to be held at Atlanta, Ga., May 13-18, also for dependent members of their families, and the arrangements will apply from the following territory:

New York State (east of and including Buffalo, Niagara Falls, Suspension Bridge and Salamanca), New Jersey, Pennsylvania (east of and including Erie, Oil City and Pittsburgh), Delaware, Maryland, District of Columbia, Virginia and West Virginia (east of and including Wheeling, Parkersburg, Kenova, Orange and Norfolk).

Children of 5 and under 12 years when accompanied by parent or guardian will, under like conditions, be charged one-half of the fares for adults.

The following directions are submitted for your guidance:

1. Tickets at the regular one-way tariff fares for the going journey may be obtained on any of the following dates (but not on any other date) May 9 to 15. Be sure that when purchasing going ticket you request a CERTIFICATE. *Do not make the mistake of asking for a "Receipt."*

2. Present yourself at the railroad station for tickets and Certificates at least 30 minutes before departure of train on which you will begin your journey.

3. *Certificates are not kept at all stations.* If you inquire at your home station, you can ascertain whether Certificates and through tickets can be obtained to place of meeting. If not obtainable at your home station, the agent will inform you at what station they can be obtained. You can in such case purchase a local ticket to the station which has Certificates in stock, where you can purchase a through ticket and at the same time ask for and obtain a Certificate to place of meeting.

4. *Immediately on your arrival at the meeting present your Certificate to the endorsing officer, Dr. C. O. Cheney, Secretary,* as the reduced fares for the return journey will not apply unless you are properly identified as provided for by the Certificates.

5. It has been arranged that the Special Agent of the carriers will be in attendance on May 13 to 18, from 8.30 A. M. to 5.30 P. M., to validate Certificates. If you arrive at the meeting and leave for home again prior to the Special Agent's arrival, or if you arrive at the meeting later than May 18 after the Special Agent has left, you cannot have your Certificate validated and consequently you will not obtain the benefit of the reduction on the home journey.

6. So as to prevent disappointment, it must be understood that the reduction on the return journey is not guaranteed, but is *contingent on an attendance of not less than 150 members of the organization at the meeting and dependent members of their families*, holding regularly issued Certificates obtained from Ticket Agents at starting points, from where the regular one-way adult tariff fares to place of meeting are not less than 67 cents on going journey.

Certificates issued to children at half fares will be counted the same as Certificates held by adults.

7. If the necessary minimum of 150 Certificates are presented to the Special Agent, and your Certificate is duly validated, you will be entitled,

up to and including May 22, to a return ticket via the same route over which you made the going journey at *one-half of the regular one-way tariff fare* from the place of meeting to the point at which your Certificate was issued.

8. Return tickets issued at the reduced fares will not be good on any limited train on which such reduced fare transportation is not honored.

9. *No refund of fare will be made on account of failure to obtain proper Certificate when purchasing going tickets, nor on account of failure to present validated Certificate when purchasing return ticket.*

ADDITIONAL COMMITTEES OF THE ASSOCIATION.—The January issue of the JOURNAL contained the committees appointed up to the time of going to press. The Committee on Arrangements is now presented in full, and the Committees on Publicity and on the Activities of the Neuropsychiatric Division of the Veterans Bureau:

COMMITTEE ON ARRANGEMENTS.

Newdigate M. Owensby, M. D., Chairman.....	Atlanta, Ga.
Roger C. Swint, M. D., Vice-Chairman.....	Milledgeville, Ga.
H. D. Allen, M. D.....	Milledgeville, Ga.
N. P. Walter, M. D.....	Milledgeville, Ga.
G. L. Echols, M. D.....	Milledgeville, Ga.
L. P. Longino, M. D.....	Milledgeville, Ga.
H. D. Allen, Jr., M. D.....	Milledgeville, Ga.
E. W. Allen, M. D.....	Milledgeville, Ga.
Richard Binion, M. D.....	Milledgeville, Ga.
Y. H. Yarbrough, M. D.....	Milledgeville, Ga.
W. D. Partlow, M. D.....	Tuscaloosa, Ala.
Eugene D. Bondurant, M. D.....	Mobile, Ala.
William M. Faulk, M. D.....	Tuscaloosa, Ala.
Tom Williams, M. D.....	Miami Beach, Fla.
C. D. Mitchell, M. D.....	Meridian, Miss.
Matthew J. L. Hoye, M. D.....	Raleigh, N. C.
M. A. Griffin, M. D.....	Ashville, N. C.
J. W. Vernon, M. D.....	Morgantown, N. C.
C. F. Williams, M. D.....	Columbia, S. C.
James E. Boone, M. D.....	Columbia, S. C.
W. S. Farmer, M. D.....	Nashville, Tenn.
R. E. Lee Smith, M. D.....	Bearden, Tenn.
Edwin W. Cocke, M. D.....	Bolivar, Tenn.

COMMITTEE ON PUBLICITY.

FOR THREE YEARS.

George K. Pratt, M. D., Chairman 1928-29.....New York, N. Y.

FOR TWO YEARS.

Henry B. Elkind, M.D.....Boston, Mass.

FOR ONE YEAR.

Clarence A. Bonner, M.D.....Boston, Mass.

FOR FIVE YEARS.

Roger C. Swint, M.D.....Milledgeville, Ga.

FOR FOUR YEARS.

A. S. Hamilton, M.D.....Minneapolis, Minn.

COMMITTEE ON THE ACTIVITIES OF THE NEUROPSYCHIA-
TRIC DIVISION OF THE VETERANS BUREAU.

George M. Kline, M.D., Chairman.....Boston, Mass.

Glenn E. Myers, M.D.....Los Angeles, Cal.

Albert M. Barrett, M.D.....Ann Arbor, Mich.

ADDITIONAL LIST OF APPLICANTS FOR FELLOWSHIP OR MEM-
BERSHIP IN THE AMERICAN PSYCHIATRIC ASSOCIATION.—The
following list of applicants for fellowship or membership in The
American Psychiatric Association is supplemental to that published
in the JOURNAL for January, 1929:

Clinton G. Beckett, M.D., Gulfport, Miss.

Harold H. Berman, M.D., Ogdensburg, N. Y.

Frederick Roy Carter, M.D., Augusta, Maine.

Donald W. Cohen, M.D., Buffalo, N. Y.

Leon E. Duval, M.D., Ionia, Mich.

Alfred C. Garton, M.D., Gulfport, Miss.

Joseph P. Gilbert, M.D., Nashville, Tenn.

Charles M. Gilmore, M.D., Craig House, Beacon, N. Y.

Sol. W. Ginsburg, M.D., Ossining, N. Y.

Henry L. Imus, M.D., Ionia, Mich.

Muriel Ivimey, M.D., 104 E. 40th St., New York, N. Y.

T. Norbert Kende, M.D., Morgantown, N. C.

Joseph E. Kilman, M.D., Wingdale, N. Y.

J. A. Knight, M.D., Orient, Ohio.

Harry A. LaBurt, M.D., 400 Forest Ave., Buffalo, N. Y.

John S. Laird, M.D., Gulfport, Miss.

John Levy, M.D., 162 W. 94th Street, New York, N. Y.

E. W. Long, M.D., Columbia, S. C.

J. L. McCartney, M. D., 145 E. 57th Street, New York, N. Y.
Bradford J. Murphy, Colorado Springs, Colo.
Leo P. O'Donnell, M. D., Ogdensburg, N. Y.
Francis H. Poole, M. D., Brooks Field, Texas.
Gilbert J. Rich, M. D., New York, N. Y.
Thomas Hugh Scott, M. D., Maywood, Ill.
Lowell S. Selling, M. D., New York, N. Y.
Roy G. Smarr, M. D., Columbia, S. C.
George R. Stalter, M. D., Gulfport, Miss.
Alfred M. Stanley, M. D., Buffalo, N. Y.
George I. Swetlow, M. D., New York, N. Y.
George L. Warner, M. D., Marcy, N. Y.
Frederick I. Wertham, M. D., Baltimore, Md.
Niles Westcott, M. D., Providence, R. I.
Benjamin L. Wyman, M. D., Birmingham, Ala.
Malcolm H. Yeaman, M. D., Gulfport, Miss.

THE FIRST INTERNATIONAL CONGRESS ON MENTAL HYGIENE.—
The Mental Hygiene Bulletin for January, 1929, published by the
National Committee for Mental Hygiene, says:

The week of May 5-10, 1930, has been fixed for the convening, at Washington, D. C., of the First International Congress on Mental Hygiene, previously mentioned in the *Bulletins* of June and December, 1928.

The spirit animating International Congress promotion is indicated by the announcement of the acting Committee on Organization that the keynote is to be that of "coöperative participation" of mental hygiene and related organizations in sponsoring, organizing, planning and program making for the Congress.

The International Congress will be sponsored by a Committee on Organization whose membership will be widely representative of the mental hygiene movement in all of the participating countries. The Chairman of the committee is Dr. Arthur H. Ruggles of Providence, R. I., President of the American Foundation for Mental Hygiene and Chairman of the Executive Committee of the National Committee for Mental Hygiene. The Vice-Chairmen of the committee are Dr. Samuel T. Orton of New York City, President of The American Psychiatric Association, and Dr. George E. McPherson of Belchertown, Mass., President of the American Association for the Study of the Feeble-minded, each of whom serves as Vice-Chairman in his representative capacity, in view of the fact that these associations will join with the International Congress by arranging to hold their annual meetings in Washington during the Congress week.

ADMINISTRATIVE OFFICE OPENED.

Mr. Clifford W. Beers has been elected Secretary-General of the Congress. An administrative office has been set up at 370 Seventh Ave., New

York City, in charge of John R. Shillady as Administrative Secretary and executive responsible for organization, promotion and business management of the Congress. Mr. Shillady has had large experience in social work organization and is well known to social workers in the United States, particularly in the national field.

SPONSORING COMMITTEE MEMBERSHIP OUTSIDE OF UNITED STATES.

The membership of the Committee on Organization is being organized from the point of view of including within its personnel representatives of all phases of the mental hygiene movement. The following individuals are the members of the committee already appointed from countries other than the United States. The full list of the committee including the representatives from the United States will be announced later.

Africa: Dr. J. T. Dunston, Pretoria, South Africa.

Australia: Dr. E. Morris Miller, Hobart, Tasmania; Dr. Ralph Noble, Sydney, New South Wales.

Belgium: Dr. August Ley, Brussels; Dr. F. Sano, Gheel; Dr. L. Vervaeck, Brussels.

Brazil: Dr. Gustavo Riedel, Rio de Janeiro.

Bulgaria: Dr. Stephen Danadjieff, Sofia.

Canada: Mr. E. W. Beatty, Montreal; Mrs. David A. Dunlap, Toronto; Dr. C. M. Hincks, Toronto; Dr. Charles F. Martin, Montreal; Dr. Colin K. Russel, Montreal.

Denmark: Dr. Viggo Christiansen, Copenhagen.

Finland: Miss Karin Neuman-Rahn, Helsingfors.

France: Dr. Henri Claude, Paris; Mr. Joseph Delaitre, Paris; Dr. Genil-Perrin, Paris; Dr. J. Roubinovitch, Paris; Dr. Edouard Toulouse, Paris.

Germany: Dr. Ernst Roemer, Karlsruhe; Dr. Robert Sommer, Giessen; Dr. D. W. Weygandt, Hamburg.

Great Britain: Dr. J. L. Birley, London; Dr. Hubert Bond, London; Dr. A. Helen Boyle, Hove, Sussex; Sir E. Farquhar Buzzard, London; The Rt. Hon. The Countess of Chichester, Lewes, Sussex; Sir Maurice Craig, London; The Honorable Lady Darwin, Cambridge; Miss Evelyn Fox, London; Lt.-Col. Edwin Goodall, North Cardiff, South Wales; Lt.-Col. John R. Lord, Epsom; Dr. Hamilton Clelland Marr, Edinburgh, Scotland; Dr. Bedford Pierce, Malton, Yorks; Dr. George Robertson, Edinburgh, Scotland; Sir Leslie Scott, London; The Rt. Hon. Lord Southborough, London; Dr. Henry Yellowlees, York.

Greece: Dr. H. Michalopoulos, Athens.

Holland: Dr. K. Herman Bouman, Amsterdam.

Hungary: Dr. Gustav Olah, Budapest.

Italy: Dr. G. C. Ferrari, Bologna; Prof. Ettore Levi, Rome.

Japan: Dr. Shuzo Kure, Tokio.

Luxemburg: Dr. Ernest Wenger.

New Zealand: Dr. A. R. Falconer, Dunedin.

Norway: Dr. Sigurd Dahlstrom, Oslo; Dr. Hans Evensen, Vinderen Bei Oslo; Dr. Ragner Vogt, Oslo.

Porto Rico: Dr. Mario Julia, Hato Rey.

Russia: Dr. L. Rosenstein, Moscow.

Spain: Dr. W. Lopez Albo, Bilbao; Dr. Rodriguez Arias, Barcelona;
Dr. Gonzalo Lafora, Madrid.

Sweden: Dr. Ernst Goransson, Gotenborg; Dr. Joseph Lundahl, Visby.

Switzerland: Dr. Hans W. Maier, Zurich; Dr. A. Repond, Monthey
(Valais).

COÖPERATIVE WORLD-WIDE PARTICIPATION OF RELATED ORGANIZATIONS.

Every effort is to be made by the Committee on Organization to make the International Congress a truly *international one* and to secure not only the largest possible attendance from countries other than the United States, but the participation in planning and thinking of mental hygiene and related organizations, groups and individuals on a world-wide scale. The plan of organization contemplates the active sponsorship and coöperative participation of national committees in all the countries interested as part of the Congress procedure. The members of the Committee on Organization from the United States and Canada have volunteered to carry the burden of working out all of the details for the Washington meeting.

Organizations most closely allied to the mental hygiene movement are being asked to designate representatives to serve on the organizing, planning and promoting committees of the Congress. Later on in the procedure, these same organizations, both in the United States and other countries, will be asked to contribute their thought to the organizing of the program of papers and addresses, round table discussions and other features of the Congress program.

Active work along the line of organizing the program will be undertaken by Dr. Frankwood E. Williams, Medical Director of the National Committee for Mental Hygiene, who has been appointed Chairman of the Executive Committee on Program.

The organizations already asked to designate members on the Committee on Organization, in addition to the United States and Canadian National Committees for Mental Hygiene and those of the 23 other countries already sponsoring the Congress, include The American Psychiatric Association, the American Association for the Study of the Feeble-minded, the American Neurological Association, the American Psychological Association, the American Orthopsychiatric Association, the American Association of Psychiatric Social Workers and all State Mental Hygiene Societies in the United States of America. This procedure of "coöperative participation" in planning and thinking for the Congress will be carried further by the inclusion of other organizations just as rapidly as a special Committee on Plan and Scope has been able to work out the details of the coöperative participation plan.

PLANNING CONFERENCE.

A Planning Conference of advisers to the First International Congress on Mental Hygiene, held in December at the Yale Club in New York,

initiated the first of a series of coöperative conferences which will be held, in order to more fully develop the coöperative participation plan. This planning conference considered such important details of International Congress procedure as: What should be known by the Congress promoters about former international Congresses? What is their significance for the present Congress? A discussion of Congress objectives both as to method of organization and program; the number of days that the Congress should meet; the question of supplementary and regional meetings in other parts of the United States after the Congress has adjourned; questions having to do with interesting various governments and promoting attendance and participation of delegates from other countries; the relation of state and provincial governments and allied and related national organizations in the several countries toward the Congress; questions as to the best measures to be taken to insure that non-English speaking and other strangers to Washington should feel at home; how best to deal with language difficulties and interpretations and translations; how to secure and prepare information for the benefit of Congress delegates which will conserve their time and give them a bird's-eye view of the status of mental hygiene work throughout the world; and similar questions of practical detail.

STUDY OF INTERNATIONAL CONFERENCES.

The Administrative Secretary is making a special study of previous international congresses and of large national meetings held in the United States, from the point of view of technique and procedure, in order that the most may be gotten out of the five- or six-day period during which the delegates will meet together. Special efforts are to be made to arrange for the meeting of workers in various special fields of mental hygiene from all of the countries and to see that those coming from abroad have every facility that can be afforded them for seeing what they would like to see and meeting the persons they would like to meet in the United States.

SUGGESTIONS INVITED.

The Committee on Organization of the Congress realizes that the Congress can succeed in achieving worthwhile objectives only to the extent to which teamwork, on the part of all concerned with the development of mental hygiene work, can be brought into play. The committee says: "Do not wait to hear from us. Our staff is small and there may be delays or inadvertent omissions on our part. Write of your interest and send your suggestions for the Congress to Clifford W. Beers, Secretary General, 370 Seventh Avenue, New York. All communications will be welcomed, considered and acknowledged."

It is certainly fitting that the First International Congress on Psychiatry should be held in the United States where the modern movement for mental hygiene had its origin and that the Secretary-

General of the Congress should be Mr. Clifford W. Beers who is so largely responsible for the inception and progress of the movement both in the United States and abroad.

The American Psychiatric Association at its meeting in 1928 directed its Council to arrange that the annual meeting of 1930 should be held in Washington and during the meeting of the Congress.

The Association is heartily in sympathy with the proposed Congress, and its JOURNAL pledges its hearty support.

REAPPOINTMENT OF DRs. PARSONS AND KIEB.—Governor Franklin D. Roosevelt of New York has announced the reappointment of Dr. Frederick D. Parsons, Commissioner of Mental Hygiene, and Dr. Raymond F. C. Kieb, Commissioner of Correction.

The Governor thus continues in office two men who have demonstrated their eminent fitness for these two important positions. Both are trained psychiatrists, and each has had experience and training which specially qualify him for the position he fills.

The JOURNAL had some doubt as to the wisdom of the change which was made during Governor Smith's administration, particularly as related to the Commissioner of Mental Hygiene which made his term of office contemporaneous with that of the Governor who appointed him. The action, however, of the Governor in appointing Dr. Parsons as Commissioner of Mental Hygiene and Dr. Kieb Commissioner of Correction gave ground for a feeling that perhaps the doubts were unwarranted and unnecessary, and Governor Roosevelt's reappointment of these gentlemen establishes a precedent from which it will be difficult for future Governors to depart. Dr. Parsons will maintain the traditions of the State Hospital Commission, which the Mental Hygiene Commission succeeds, and Dr. Kieb, the first psychiatrist, we believe, to be appointed Commissioner of Correction, has already made a record in the supervision of the penal and correctional department of the State Administration, which has demonstrated the wisdom of Governor Smith's original appointment and particularly the selection of a psychiatrist.

Drs. Parsons and Kieb are Fellows of The American Psychiatric Association.

Abstracts and Extracts.

Emotion-Choc et Confusion Mentale. MAGALHAES LEMOS (Revue Neurologique, 1928, 2, 870) presents a case of mental confusion which occurred in a somewhat nervous but otherwise physically and mentally normal 16-year-old girl, on the basis of emotional shock. The onset following the shock was immediate and sudden with the symptoms of morbid depression and two days later she passed into a delirious, hallucinated and amnesic period of short duration accompanied by psychomotor excitement, incoherence, distractibility, etc. The hallucinations passed in a few hours but the patient continued to be very much agitated and incoherent. After a few days the excitement attenuated very rapidly and disappeared on the 14th day giving place to a period of retardation, depression, inertia and mental torpor. The symptoms during this period receded very slowly until the 73d day when she was taken home. In response to this pleasurable emotion the symptoms were ameliorated remarkably at once and she progressed from then on slowly to normality. Three and a half months after the onset the patient showed a certain amount of intellectual dullness and a few gaps, more or less important, in her memory. He concludes that depressive emotional shock may cause mental confusion in all respects similar to that of physical traumata, intoxication or infection in an individual otherwise normal, and that on the other hand an agreeable emotion occurring in the course of the illness is capable of bringing about its instantaneous cure.

LAWRENCE F. WOOLLEY, M. D.,
Colorado Psychopathic Hospital.

Difficultes du Diagnostic Differentiel Anatomo-Clinique. Entre la Sclerose Laterale Amyotrophique et les Paralysies Pseudo-Bulbaires. BERTRAND & BOEFF (Revue Neurologique, 1928, 2, 844) present a case which illustrates clearly the differential diagnostic difficulties between pseudo-bulbar palsy and amyotrophic lateral sclerosis. The case showed a clinical picture very closely resembling pseudo-bulbar palsy but at autopsy they found degeneration of the pyramidal tracts in all respects similar to those found in amyotrophic lateral sclerosis. They conclude that amyotrophic lateral sclerosis may present itself clinically as pseudo-bulbar palsy and that the double degeneration of the pyramidal tract may not pursue a continuous course throughout the cerebrospinal axis.

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An Experiment in Character Measurements. JOHN N. WASHBURN (The Journal of Juvenile Research, 1929, 13, 1) presents an interesting study in character measurements based upon one hypothetical choice and two real choices. The total number of children tested was 73, 50 of whom had the test in its final form. The choices were: 1. (Suppositious) An automobile now or an automobile and a million dollars a year from now. 2. A piece of candy now or five pieces of candy next week. 3. One cent now or ten cents next week. (If one cent was refused, five cents now were offered and if in turn this was refused eight cents now were offered.) A basis for scoring was devised on the fundamental assumption that delinquent behavior is based to some extent at least upon the inability of the child to pass over a present desire for a future gain. The results of these ratings were correlated with intelligence quotient, a general behavior rating as given by teacher and parents, the chronological age and the mental age. The chronological age range was from 4 to 17 years, the mental age range from 3 to 17½ years. The I. Q. range was from 50 to 156. The following conclusions of the author appear to be substantiated by the evidence obtained: "1. In children above 8 years of age (or, better, above a mental age of 8 years) a choice of now in any of the three tests is associated with misbehavior. 2. In children above 8 years of age a consistent choice of now in all three tests is more closely associated with misbehavior than is the choice of now in any single test. 3. Apparently the older the child the worse the type of behavior signified by a choice of now, and conversely, the younger the child the better the type of behavior signified by a choice of later. At all events a consistent choice of now (or a very low score in the combined tests) appears to indicate delinquency in children over 12 years of age and more or less misbehavior in children between 8 and 12 years. For children under 8 it seems to have little significance. A consistent choice of later (or a high score in the combined tests) seems to have little significance for children over 12 years. It is associated with good behavior in children between 8 and 12 years and is even more clearly associated with good behavior in children under 8 years. 4. In our data, in which the chronological age varies widely, there appears to be no relation between brightness (I. Q.) and the test results." This is an interesting study and suggests a general approach to behavior measurements.

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Maladjustment of Children. META L. ANDERSON (The Journal of Juvenile Research, 1929, 13, 49) states that the school has a responsibility in relation to the cause and the cure of maladjustment in children and that while theoretically this has been accepted by the schools there has been no practical application of the theory. She would make the first step in the correction of the situation the acceptance practically of the implied obligations. The second step would be a complete survey of the working conditions in which the children find themselves. The third step would be the training of the teachers. She believes that if the objective is recognized the necessary ma-

chinery provided and the teachers properly trained a large number of maladjustments may be corrected in the school room or may be prevented from occurring.

LAWRENCE F. WOOLLEY, M. D.,
Colorado Psychopathic Hospital.

Crime and the Conflict Process. E. H. SUTHERLAND (The Journal of Juvenile Research, 1929, 13, 38) considers crime as a form of conflict and states that, in general, conflict tends to produce either more conflict or else submission and avoidance, hence conflict in general tends to drive the participants to the logical extremes of their positions and consequently tends to isolate the participants from each other. He presents quotations from the literature and personal instances to demonstrate this general statement. He states that while about 350,000 persons are committed to penal and reformatory institutions in the United States in a year, relatively few of these have committed crimes of aggression against the person or property of individuals. "About 2 per cent of the persons arrested are charged with those three offenses (burglary, robbery, and murder), 4 per cent of the persons convicted and 5 per cent of the persons committed after sentence to penal and reformatory institutions. At least three-fourths of the persons handled by the agencies of the law are convicted of crimes against sobriety and good order, sex morality, public health and safety, or public policy." He outlines the process of conflict as exhibited in all crimes as follows: A group of people feel that one of their values is endangered by the behavior of others. If possible they secure the enactment of a law and thus win the cooperation of the state in the effort to protect their value, hence "The law is a device of one party in conflict with another party, at least in modern times." Since the other group does not appreciate the value so much they continue to do the thing which before was not a crime. This is a continuation of the conflict which the law was designed to eliminate. Punishment is a further aspect of the same conflict. He considers the offenders as being representatives of a group and believes that the punishments are most effective which have the support of the individual's own group. The increase in crime he attributes to the increasing conflict between different groups due to different standards and the complexities of modern civilization. If the individuals or group do not support the punishment, the individual is apt to feel that the punishment is unjust and resent it and seek revenge. If his own group does support the punishment then the individual is more apt to accept it as just and be benefited thereby. "Thus, back of the laws, back of the violation of laws, and back of the inefficient administration of the laws, we find the complexities and conflicts in modern cultures. This same condition is a basic factor in the explanation of the increase in the frequency of punishment and the decrease of the efficacy of those punishments which are inflicted." The author considers that on the whole punishment is decreasing and that, therefore, "in the correction of crime it is desirable to attempt to develop the non-punitive policies without attempting to throw over-

board the conventional policies over night." "There is no easy solution of the problem of crime. It is rooted in the social organization and can be solved only by a social reorganization. Apparently this will need to be something like the modification that took place in the public school. Fifty years ago they had many punishments and very poor behavior; behavior was not substantially modified by multiplying punishments. As soon as experts were placed in charge of schools, trained teachers developed, and curricula adapted to the needs of the pupils, the disorder almost completely disappeared and punishments became unnecessary. Until we can do something analogous to this in society in general we need not expect great permanent reduction in crime rates."

LAWRENCE F. WOOLLEY, M. D.,
Colorado Psychopathic Hospital.

Book Reviews.

Folklore of the Teeth. By LEO KANNER, M. D. (New York: The Macmillan Company, 1928.)

In writing this book, Leo Kanner aimed at an outline of the folklore of the teeth, which, at the same time, might serve as an introduction to a new branch of Dental Science. In addition to the book proper, there is much to occupy the student in the bibliography of over three hundred references. There is a short glossary and seventeen illustrations. The book is arranged in six parts and further divided into chapters of which there are thirty-three.

The book contains a wealth of folkloristic material. However, if the author had devoted more space to interpretation and less to digression from true folklore, he would have enhanced the value and popularity of his work. The superficial explanations offered in the text seem to represent an earlier writing when compared with the more erudite preface and the psycho-analytic coloring of his article in the January, 1928, issue of *The Psycho-analytic Review*.

Beyond whatever points one may find to criticize, the book has informative value. Among the many items of interest is the setting forth of the belief held by Aristotle that a man has more teeth than a woman. There is also the notion that "When Chosroes, the Persian, carried away the true cross discovered by Saint Helena, the number of teeth in the human race was reduced. Before that time, Christians were furnished with thirty, and in some cases with thirty-two, but since then no human being has had more than twenty-three." It is difficult to believe that Rigord, the historian, could have made such a broad and easily disputed statement unless he intended to compare in subtle fashion the loss of the true cross and the seven or nine teeth with some loss of potency accruing from the repressive influence of Christianity. Analogy between the teeth and the libido is brought out in the author's statement that "A husband was granted a divorce on the ground of his wife's toothlessness." (P. 60.) Furthermore, "Sudden fright is apt to make one's teeth fall out." In Chapter XI we learn that the custom of wearing a cord about the loins is found among the ritualistic performances to ward off toothache. A considerable therapeutic value has been attached to the teeth. In Chapter XXX we note that, "According to Pliny the first tooth which a child has lost cures pains of the uterus," and "Teeth of an old woman are used as a fertility charm. . . ." Again, "The teeth of a man who had been killed in the war or otherwise were thought to be very efficient talismans against the loss of the generative power." From these excerpts it may be seen that though the book offers much to the dentist it is also of interest to the psychiatrist.

ERNEST E. HADLEY.

The New Criminology: A Consideration of the Chemical Causation of Abnormal Behavior. By MAX G. SCHLAPP, M.D., Professor of Neuropathology at New York Post-Graduate Medical School; Director of the New York Children's Court Clinic, and EDWARD H. SMITH, Author of "Con," "Famous Poison Mysteries," and "Mysteries of the Missing." (New York: Boni and Liveright, 1928.)

This book is a strange mixture of good and bad. The fact that it was written by a psychiatrist in cooperation with a newspaper man may have something to do with this. On the other hand, the weakness of the book does not depend upon any decided flair for a gaining of popular favor. It has a more subtle philosophical defect. This, and the fact that the book contains so much good material, make it a dangerous volume.

The book is divided into three parts. The first traces the history of the philosophy of crime and punishment and of the modern criminologic point of view. This is an excellent section; it is written accurately, entertainingly and eloquently. There are passages such as this: "It is indeed a strange fact that, in all this long span, when all branches of science were striding as never before in man's scores of millennia, when medical science was making undreamed advances and the race came, by understanding and application of the physical laws of nature, to a very genuine sovereignty over its world, the judges, the lawmakers and the official penologists failed to guess, even, that the reasons for failure in the handling of criminals lay in their own backwardness and ignorance. It would seem almost incredible that, after centuries of torture, violence, repressions and nameless brutalities, alternated with preaching, moralizing and sentimentalizing, not one of these "practical" criminologists ever guessed that the reason their charges did not reform was that they could not reform, having been by nature deformed in brain and mind." And: "As a matter of accuracy, many of the same unfortunates whom the witch-hunters and demon-exorcisors were burning in the Seventeenth Century are being condemned to prison in the Twentieth." And: "The brief interviews in cells and pens which now pass for psychiatric examinations of accused slayers are a disgrace to our culture and the contrary opinions and crass wranglings of physicians employed by the defense and the state are an insult to the profession and to mental science. The day will come when any man accused of a homicide will be examined by an unbiased board of psychiatrists and will render a decision wholly impartial and binding upon the courts. Judges, lawyers, jurors, and murderers all will likely combat such a move, but it will be made eventually because decency and public safety will require it."

From this point, however, the authors wander into serious and sad confusion. The next two parts of the book deal, first, with the mentally deficient criminal, and, secondly, with the intelligent criminal. Such a division serves no practical usefulness. It has long been a matter of common knowledge, which psychiatry has repeatedly confirmed, that there is no direct accessible relationship between intelligence and crime. The authors would have us be-

lieve that feeble-mindedness was one of the great causes of criminal behavior, and, secondly, that such defectiveness is usually the result of endocrine disorder.

The third section is an elaborate exemplification of the thesis that other types of misbehavior (aside from stupid delinquencies) may also be attributed to glandular disorders. The authors do not clearly distinguish between glandular mechanisms in behavior and the gross disorders of the endocrine system which produce certain behavior syndromes. These passages occur, for example, in the description of one of the cases. "Frustrations in young and passionate love are not lightly borne even by the stolid. In this excitable boy the situation produced an excess activity of the glands that sent his self-control further and further from the reach of inhibitory breaks. . . . His mother drove him from the flat to seek work. . . . So he went out time after time, got into the subway and started down town, but when he reached 42d street he could go no further. . . . The ever-mounting disease of the glands was subjecting the cells in the nervous system to an ever-more unendurable irritation, so that their delicate colloids became more and more readily explosive each day. . . . The boy could no longer control himself. He could not do what he wanted. He could not even go where he set out for. (Surely one asks no clearer instance of the chemical control of acts.)"

It seems incredible that such a passage as this should appear in a book written by as able a man as Dr. Schlapp proved himself to be. It was Dr. Schlapp who originally proposed to Governor Alfred Smith the idea of a board of experts for the proper disposal of all criminals, the sentencing power to be removed from the judges. Yet this and many similar passages are to be found, and the thesis is illustrated with photographs of some obvious endocrine cases which the reader is given the impression are typical of criminal cases medically studied.

Such unscientific material in the center of the book completely ruins the good effect of the introduction and renders useless the excellent recommendations contained in the chapter on "Program." This program corresponds in general with what psychiatrists, and particularly the Committee on the Legal Aspects of Psychiatry of this Association, have specifically recommended in regard to prisons, psychopathic hospitals, research laboratories, the release of prisoners, and the contribution of the psychiatrist in the court.

The book must be viewed by all psychiatrists with sad misgivings and regretful alarm. Containing so much good, it is nevertheless a dangerous book and a setback to the very thing that its authors attempt to forward. The reason for this is that the various groups of persons who for emotional reasons are opposed to the use of psychiatry in criminology will find in this book plenty of ammunition to substantiate them in a direct attack upon the psychiatrists. They will use it to illustrate exaggerated theories, unsubstantiated claims, and lop-sided conceptions coming from an experienced psychiatrist. Worst of all, the book will be used to prove that psychiatrists desire to do something, and claim to be able to do something, that most psy-

chiatrists neither desire nor claim to do. The psychiatric aim, so far as criminology is concerned, is certainly not the *curing* of criminals. The expression "curing criminals" is a red flag to many of the opponents of psychiatry, who allege that psychiatrists are a bunch of emotionalists who are attempting to apply their little knowledge of medicine to the rescue of fallen souls not worth saving. Dr. Schlapp and Mr. Smith have given these gentlemen some fine ammunition. As a matter of fact, they are very wrong. As private practitioners, psychiatrists are out to help their patients, or their patients' relatives, in the various ways medical science has developed. As criminologists, however, psychiatrists are anxious to put their services at the disposal of the authorities that the public has designated in order to protect that public against the ravages of the antisocially inclined, about whom psychiatrists justifiably believe themselves to be better informed than anyone else. Because once in ten thousand cases some unlucky psychiatrist is dragged into the court room to say what he honestly can of the mental condition of a patient concerning whom he has been personally consulted, psychiatrists have been damned all over the country as having no social conscience. As a matter of fact, psychiatrists have shouted themselves hoarse telling the public that politicians and parole boards and judges are still stupidly releasing from prison people whom any psychiatrist could have told them should have never been released, that judges have been sentencing for two or three years offenders whose make-up indicates a lifelong propensity for viciousness and dangerousness. Psychiatrists have never claimed, or offered, to cure criminals, not because we think it can't be done, but because we think that it is not the problem, and that to talk about it is to shift interest from the public to the much less important consideration—namely, the criminal. If Dr. Schlapp, or any one else, can cure criminals, or can cure one in a hundred criminals, we are all glad of it, but most of us are much more vitally concerned with what to do with the other ninety-nine.

Hence, in spite of its many good lines, in spite of the wide experience of the authors, in spite of some interesting cases, and in spite of an excellent program suggested in the final chapter, this book is likely to do more harm than good.

KARL A. MENNINGER,
Topeka, Kansas.

The Ways of Behaviorism. BY JOHN B. WATSON, A. M., Ph. D., LL. D.
(New York and London: Harper & Brothers, 1928.)

This brief book affords a simple and clear explanation of Behaviorism. There is little that is new in it and one who has read the author's previous publications will find it largely a restatement of his views. Much of it has appeared in the form of magazine articles.

The first chapter is called "What is Behaviorism?" The author objects to the subjective or introspective psychology and wishes to substitute the "common sense" view of studying what people do, *i. e.*, human behavior.

There is no place in such a study for perception, consciousness, etc. Everything is to be explained in terms of reactions to stimuli.

The second chapter is entitled "Why the Behaviorist has no Instinct." According to Watson, the false idea that man has a mind as well as a body accounts for much of our trouble. Very little value is given to heredity and eugenics. "Nurture not nature" is the great cause of our behavior and the conditioned reflex will explain our most complicated and involved behavior as well as our simplest. There is no necessity to bring in any more factors.

In the third chapter, the title is "The Behavior of the Gut—A Study in Human Emotions." It is held that the guts or viscera are profoundly altered by any emotion and yet are not under our control as are the voluntary muscles. Hence the emotional troubles of life. Although no definition of emotion is given, it appears that emotions are gut reaction patterns and that most of them are conditioned or acquired. Only three emotional patterns exist in the unconditioned infant. Fear is aroused by a loud sound or loss of support, rage by thwarting bodily movements, love by stroking contact of skin.

Chapter four discusses "Memory as the Behaviorist Sees It." Watson claims "there is no faculty or process of memory—there is only learning, and loss in skill which comes from lack of practice." There is no such thing as auditory or visual images. The behaviorist has "made a clean sweep of all the rubbish called consciousness." All that happens when we remember is that we carry on a conversation with ourselves, at a lower level than talking or whispering. This is thought.

In the fifth chapter, we learn "How We Think: A Behaviorist's View." Thought is talking silently to oneself, "inward verbalization." During this process some sort of muscular activity goes on in the throat.

Chapter six discusses "The Myth of the Unconscious." As there is no mind and no consciousness, there is manifestly no unconscious. For the unconscious, Watson substitutes the un verbalized, just as the conscious is considered the verbalized. The mental patient has un verbalized tendencies which he cannot give to the physician through speech. Hence analysis is a useless procedure and merely verbalizes. The treatment is re-education, re-conditioning, re-integrating.

Chapter seven closes the book. It discusses "Can the Adult Change his Personality?" Personality is defined as "the totality or sum of my habit systems, my conditionings." The author is not very optimistic but says that if one had complete control in all respects over an individual for a prolonged period it might be possible.

The behaviorist and the psycho-analyst have one point in common, both have ingenious systems which explain everything. Of the two, the behaviorist has the advantage of a simple formulation.

KARL M. BOWMAN.

In Memoriam.

RANSOM HARVEY SARTWELL, M. D.

The writing of this obituary notice of Dr. Sartwell has fallen upon one who has known him intimately for many years, who during some of this time has been associated with him officially, and who from this point of vantage has had opportunity to observe his broadening grasp of social problems as they relate to wards of the state; his growing attainments in the field of psychiatry; his steady advance in positions of responsibility, as physician and executive assistant in institutions for the socially inadequate, the physically incapacitated, the mentally diseased; and finally as the administrative head in Rhode Island of the State Infirmary, and lastly as the Superintendent of the State Hospital for Mental Diseases at Howard, Rhode Island.

Ransom Harvey Sartwell, M. D., was born on the 30th day of December, 1887, in the town of Mooers, Clinton County, New York. He came of a sturdy stock engaged in agriculture. His father, Edwin Sartwell, and his mother, Olive Adsitt, were both natives of Mooers. He was the youngest of a family of ten children. His preliminary education was received in the public schools of Mooers.

In 1911, at the age of 23, he received the degree of Doctor of Medicine from the University of Vermont College of Medicine. Immediately following graduation, he began the practice of his profession in Ellenburg, New York, and after one year removed to Mooers, his native town, where he practiced for two years. At the end of that period he was appointed physician and surgeon to a corporation located in Standish, New York.

During the years since his graduation in medicine he was casting about to determine that field of medicine in which to devote his life. Psychiatry made its appeal to him and he sought for an opportunity to enter this specialty, with the result that he applied for and received an appointment as a Junior Assistant Physician at the State Hospital for Mental Diseases at Howard, Rhode

Island. He entered upon his duties in August, 1915, where he remained until September, 1917. While here he had attracted the attention of the Administrative Board having charge, not only of the State Hospital for Mental Diseases, but in addition the Penal and Reformatory Institutions of the State. He was invited to transfer his activities from the State Hospital to these institutions as Resident Physician. These included the State Prison and Providence County Jail and other reformatory institutions.

His desire however for advancement in the psychiatric field led him to take advantage of an offer to become Senior Assistant Physician at the Foxboro State Hospital at Foxboro, Massachusetts. He filled this post from March, 1918, to September, 1923. While here he demonstrated his aptitude for dealing not only with the practical side of psychiatry as presented in the problems of individual and ward management but his ability as an executive assistant, so that when an assistant superintendent was being sought at the Worcester State Hospital in Massachusetts, he was chosen for this responsible position, which he filled with entire satisfaction until August, 1924.

He was now invited by the Director of State Institutions, with the authorization of the State Public Welfare Commission, to return to Rhode Island, this time as the Superintendent of the State Infirmary, an institution for the aged, the infirm, those afflicted with chronic physical illnesses, having in its population mental defectives, and also conducting a maternity department; thus comprising a heterogeneous population, varying from infants to the very aged, the great majority of whom, as is the case in most almshouses, are usually regarded as thoroughly institutionalized and as eking out a vegetative existence. Dr. Sartwell did not accept in the main these traditional ideas, but devoted much attention to furthering the work of social service.

At the National Conference of Social Work held in Cleveland in 1926, he read a paper which attracted wide attention, the subject of which was "Social Research in an Infirmary," in which he advanced his belief that contrary to the usual conception there existed in infirmaries, almshouses, city and town farms a real opportunity for constructive and worthwhile social work. In his experience in the State Infirmary, this work had been the means of returning to the community a large number of individuals, some

of whom had been in the institution from 15 to 30 years, who had been looked upon as permanently institutionalized.

Another outstanding feature of his work while at this institution was the furthering of occupational therapy. This is described in a paper, entitled "Occupational Work in an Infirmary," which he was invited to read at the 10th annual meeting of the American Occupational Therapy Association at Atlantic City in 1926.

His next promotion was to the Superintendency of the State Hospital for Mental Diseases at Howard, Rhode Island, where he served under the same administrative commission as at the Infirmary. He entered upon his duties on October 1, 1926, his administration covering a period of a few days over twenty-seven months.

When he entered upon this office he had been well prepared by an unusual training and variety of experience for this task. Some projective plans for material extension of the hospital plant were under consideration when he assumed office. He showed at once his capacity in this direction by suggesting plans which have materialized into exceedingly attractive, commodious and home-like quarters for patients of the quiet, chronic class and with facilities and equipment of the most approved kind for therapeutic procedures for this class, but containing individuals too often overlooked in crowded institutions, for whom disease has not forever closed the way to recovery.

In the administration of the internal affairs of the hospital, there were progressive changes on foot in every department, which were beginning to materially add to the adequacy of the medical care and comfort of its patients.

The latter part of this administration was a most critical period in the history of the public institutions, the work of which was the caring for the wards of the state of all types and ages. For owing to certain episodes such as may occur any where connected with the various activities of such work, these institutions, not one but all, were brought into a publicity which was calculated to bring them, in the minds of many people, into disfavor. Dr. Sartwell lived through this trying period, still carrying on his work undaunted, with never a show of bitterness or resentment, but with an honesty of purpose and a courage born of his conscientious discharge of duties as he saw them.

In the meantime by his qualities of heart and mind and his solicitude for his charges, Dr. Sartwell had endeared himself to patients, relatives, employees and officials with whom he was intimately associated. Then there came a fateful evening which took him from this life without an instant of warning.

On the evening of the 11th of January, 1929, he had been a speaker at a local church at a "Fathers' Night." Returning to his residence in the hospital grounds in the latter part of the evening, he was seated alone at the moment, in the living room of the lower floor, engaged in writing a reply to a telegram which had just been handed him, when through a window, the shades of which were not drawn, he was shot and instantly killed by a patient who had escaped from the hospital several months previously and who, it appears, may have been wandering about the country and who apparently had recently come back into Rhode Island with the purpose in mind, as he subsequently declared, of taking the life of Dr. Sartwell.

Dr. Sartwell was a member of the following organizations:

The American Medical Association; The American Psychiatric Association; New England Psychiatric Association; Massachusetts Medical Society; Massachusetts Society of Psychiatry; Rhode Island Medical Society; Rhode Island Medico-Legal Society; Rhode Island Society of Neurology and Psychiatry. He was Secretary at the time of his death of the Rhode Island Alumni of the University of Vermont; a member of the Exchange Club of Providence; a member of St. Albans Lodge of Masons, Foxboro, Massachusetts, and a communicant of the Mathewson Street Methodist Episcopal Church, Providence.

Dr. Sartwell was twice married. His first wife deceased in 1920. Of this union there are two young children, a son and a daughter. His second marriage occurred in 1924. By this marriage he leaves a widow but no children.

Of his near kin he leaves a brother, Dr. Edwin W. Sartwell, a practicing physician of Peru, New York, and six sisters.

In preparing this account of the life of Dr. Sartwell there are encountered on every hand among those who have been thrown with him in official relations, in various social contacts, and as intimates, universal expressions of the highest respect, sentiments of tender regard, mingled with profound grief at the untimely and

tragic closing of a life which gave promise of a long and conspicuously useful career; for we have to recall during the comparatively brief time Dr. Sartwell was permitted to work among us, the outlines of a life devoted to service for the unfortunate of many types, of an exalted purpose pursued with a conscientious adherence to his conviction of right.

The underlying spirit that actuated this man was *service* to the unfortunate whether he saw the need in its individual or collective aspect. This cannot be better illustrated than by quoting from his published writings where he says, "*service* is even *greater service* when rendered to broken humanity, and those who need it most. . . . One's manner and attitude must be tempered with a love for that cause which is as old as the human race, as noble as the *cause of freedom, the cause of humanity.*"

Among Dr. Sartwell's characteristics may be mentioned his ever present thoughtfulness for others, a spirit of generous consideration in dealing with the short-comings of his employees, but never to the point of compromising discipline. He was of a gentle disposition and, as many have remarked, a lovable character.

By his death there was brought to a close, at the very height of physical and mental vigor, a life of honest and persistent effort manifesting qualities and attainments which presaged a career of unselfish devotion to a lofty cause; his family is deprived of a devoted husband and father; the medical profession of a member held in high esteem; psychiatry of one who dedicated himself with unstinted zeal to this special calling, and the state of an official with an eye single to its service.

"We saw him stand,
Fresh, free and brave,—full furnished for the brunt
Of Manhood's strengthening toil; to right grave wrongs,
Uphold weak souls, crush false surmise, and teach
To selfishness its shame. And then—the glow
Of morning sunshine sudden ceased. Like night
Before the dawn, the void his absence makes
Keeps us aghast and dumb."

ARTHUR H. HARRINGTON, M. D.

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I. Amaurotic Family Idiocy, Clinical and Pathologic Studies. <i>George B. Hassin</i>	969
II. Order of Birth and Size of Family. Survey of 10,455 Retarded Children in the Public Schools of Massachusetts. <i>Neil A. Dayton</i>	979
III. Psycho-Analysis of Siblings. <i>C. P. Oberndorf</i>	1007
IV. The Buscaino Black Reaction in Urine: Its Genesis and Diagnostic Value with Special Reference to Mental Diseases. <i>S. Katsenelbogen</i>	1021
V. Mental Hygiene in a University. <i>Lloyd J. Thompson</i>	1045
VI. Psychopathic Personality and Personality Investigation. <i>George E. Partridge</i>	1053
VII. The Problem of Adequate Personality Records: A Proposal. <i>Harold D. Lasswell</i> ..	1057
VIII. Proposed Research in Epilepsy. <i>R. L. Dixon</i>	1067
IX. The New Statistical System for Institutions for Epileptics. <i>Horatio M. Pollock</i> ..	1071
X. Minnesota in the Development of the Care of Its Insane. <i>Arthur F. Kilbourne</i> ...	1077
XI. Dementia Præcox. A Trial and a Retrospect. <i>Henry J. Berkley</i>	1085
XII. Proceedings of Societies:	
First Colloquium on Personality Investigation. Held under the Auspices of The American Psychiatric Association, Committee on Relations with the Social Sciences	1089
XIII. Association and Hospital Notes and News:	
Fire at the New Jersey State Hospital, Morris Plains.—Post Graduate Course in Neuropsychiatry at the Colorado Psychopathic Hospital, Denver.	1178
XIV. Book Reviews:	
Creation by Evolution—A Consensus of Present-Day Knowledge as set forth by leading authors in non-technical language that all may understand. Edited by Francis Mason. Foreword by Henry Fairfield Osborn. Introduction by Sir Charles Scott Sherrington (New York: The Macmillan Co., 1928).—Psycho-Analysis and Children. Introduction to the Technic of Child Analysis. By Anna Freud (New York and Washington: The Nervous and Mental Disease Publishing Co., 1928).—Lectures in Psychiatry. By William A. White, A. M., M. D. (New York and Washington: The Nervous and Mental Disease Publishing Co., 1928)	1179
XV. Index, Volume VIII.	1185

AMERICAN JOURNAL OF PSYCHIATRY

AMAUROTIC FAMILY IDIOCY.

CLINICAL AND PATHOLOGIC STUDIES.*

By GEORGE B. HASSIN, M. D.,

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Attending Neurologist Cook County Hospital; Histologist to
the Illinois State Psychopathic Institute, Chicago.*

Amaurotic family idiocy is one of the few mental disorders in which both the clinical and the pathologic features are fairly characteristic. Some types of this morbid condition, such as the late infantile, juvenile or the adult, cannot as yet be diagnosed clinically, while their pathologic features are so typical that a diagnosis is always possible under the microscope, obscure as the clinical picture may be. The characteristic features pertain first to the morphology of the ganglion cells. In amaurotic family idiocy, whatever the type, they are changed throughout the entire central nervous system. They are swollen (Fig. 1) ballooned or bottle shaped; the dendrons are also swollen and often obliterated. The Nissl bodies are, as a rule, deficient and gathered around the nucleus (Fig. 2); they are often lacking and replaced by a dust-like substance; the nucleus is pushed to the apical dendron and the neurofibrils are misplaced to the periphery.

The cell changes outlined are usually considered universal, that is to say, they affect the entire central nervous system, without preference for any particular region. It was also claimed that gross changes are not typical of this disease and that they may be entirely absent. However, studies of the late infantile form brought forth also gross anatomic changes which are fairly constant. For instance, the cerebellum, in this form, is invariably atrophied; the Purkinje cells are severely damaged; the fibers (climbing, mussy)

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

are lacking and the granular layer is greatly reduced in size; the occipital lobe exhibits a far gone degeneration with especial involvement of the third, fourth and fifth cortical layers and may appear atrophied even on gross examination. The frontal lobe may also exhibit a great loss of brain substance such as is not seen even in juvenile paresis, while in the infantile form the optic thalamus is preeminently affected.¹ In one of my contributions² I offered to term the infantile type of amaurotic family thalamic and to reserve the name cerebellar for the late infantile type as suggested by Jansky.³ The widespread degenerative and other structural changes, with or without the preferable involvement of the cerebellum, the optic thalamus or the occipital lobe, are more or less present in every case of amaurotic family idiocy. They merely denote that all the types are members of one disease process and that, marked as the structural changes may be, the differential microscopic diagnosis of the various types described cannot be made from the structural changes alone. For this reason the microchemical studies seem to be of greater importance. They show that in amaurotic family idiocy we deal not only with morphologic but also with chemical changes. These vary according to the type of the idiocy, being in the infantile form different from those present in the late infantile or juvenile forms; in the latter again they differ from changes described in the so-called adult type. The chemical phenomena are responsible for some structural changes such as distention and swelling of the cell body and its processes. Both are filled with abnormal chemical substances which are generally classified as lipoids and prelipoids. The latter, in the infantile form of amaurotic family idiocy, stain dark with the hematoxylin methods of Weigert, Ehrlich or Schaffer, appearing as black granules arranged in parallel rows and occupying the portion of the cell which is devoid of Nissl bodies. They are termed hematoxylinophilic, lecithinoid or protagon substances. Scarlet red and sudan III stain the cell contents a faint orange color, while osmic acid leaves them unstained. However, in some portions of the brain, such as the optic thalamus (Fig. 3) many ganglion cells stain well with osmic and scarlet red. This merely denotes that some ganglion cells are completely, some are incompletely degenerated, depending on the localization. Severe in the optic thalamus, Ammon's horn and occipital lobe, the changes are much less in evidence in the spinal cord

or in the medulla oblongata; effective and specific in the infantile form, they are ineffective in other types, such as the late infantile or juvenile, in which the cell contents do not stain by the foregoing hematoxylin methods, but stain readily with the iron hematoxylin methods of Heidenhain and Spielmeyer. Schaffer⁴ found it possible to classify the types and stages of the disease according to the chemical reactions. In the early stages Schaffer considers typical the swelling of the hyaloplasm which becomes granular and undergoes prelipoid and later lipoid degeneration. The ripener and more protracted the course the ripener, according to Schaffer, are the intracellular degenerative changes "in the nature of fatty degeneration."

Of great interest is another type of prelipoid substances, the so-called basophil-metachromatic substances. These occur as reddish, metachromatically stained globules which fill up the cell substance, pushing the nucleus to the periphery. They are enclosed within glia cells and in mesodermal adventitial spaces, near the blood vessels. Their presence, according to Alzheimer,⁵ denotes a profound nutritional disorder; they are so-called "Abbauprodukte" or catabolic products which may be transformed into fat and as such be transported to the blood vessels. In one of my cases⁶ such substances were present in immense amounts and were scattered not only around the blood vessels (Fig. 4) but also over the tissues, obscuring the individual cell elements. In another case,¹ the cell bodies contained enclosures in the form of round homogeneous structures that much resembled amyloid bodies. Such structures usually occur in cases of so-called myoclonic epilepsy which was also a pronounced clinical manifestation in the case mentioned. I did not encounter such enclosures in infantile cases of amaurotic family idiocy but Bielschowsky⁷ described them in a case of late infantile and Schob⁸ in one of the juvenile type.

It therefore must be assumed that if the cell changes are the cause of the clinical phenomena in amaurotic family idiocy, they are most likely chemical, for, as noted, the structural changes may be practically alike in all the types, while the chemical changes are not. The latter evidently reflect on the clinical picture which varies according to the type of idiocy. For instance, the infantile form is observed almost exclusively in Jewish infants, while the late infantile and juvenile forms were all observed in Gentiles; the former begins

early, at the age of six months and lasts about one year, while the late infantile begins at the age of $3\frac{1}{2}$ and lasts 4 years. In the infantile form, the fundi show the cherry red spot and seldom, optic atrophy; the latter is the rule in the late infantile type in which no red cherry spot occurs. In the juvenile type of Spielmeyer-Vogt, the onset is at the age of 6 or older (up to 14), the course is more protracted, over a period of ten or more years; there is absent the racial disposition so typical of the infantile type. A clinical feature which is rather common to all the forms is epileptiform manifestations; quite frequently decerebrate rigidity occurs with the sign of Magnus and deKleijn. If we accept the type of rigidity known as partial, one may find it in practically every case of amaurotic idiocy, associated with changes in the fundi. These are either in the form of a cherry-red spot or as shown elsewhere* in the form of its equivalents. As to the cause of the clinical and pathological changes outlined, one can only speculate. Bielschowsky,⁷ for instance, sees the cause in an "insufficiency" of the vegetative mechanism of the ganglion cells. He holds that the ferments instrumental in their metabolism are at fault, probably because of endocrine disturbances. The general opinion is that in this disease we deal with a general metabolic disorder. Such a view seems to be favored by studies of a peculiar disease described in 1914 by Niemann,⁸ thoroughly studied by L. Pick¹⁰ and known as Niemann-Pick's disease. Because of the widespread accumulation of lipoids, Bloom¹¹ calls it lipoid histiocytosis. Like the infantile form of amaurotic family idiocy, it also occurs preferably in Jewish infants (mostly girls), leads to mental deterioration, emaciation, blindness and convulsive attacks; it has a rapid course, death occurring at the age of from 9 to 18 months (Schiff¹²). In three instances (cases of Knox, Wahl, and Schmeisser,¹³ Hamburger,¹⁴ and Kramer¹⁵) the fundi showed a cherry-red spot and in one instance¹³ the disease occurred in two sisters. They differ from amaurotic family idiocy in the presence of an enlarged liver and spleen. Histologically, these show the presence of "foam" cells—large, pale bodies (Fig. 5) containing one or more nuclei and possessing a vacuolated, honey-combed structure, filled with substances, the microchemical properties of which are similar to those present in amaurotic family idiocy. The brain in the case of Knox, Wahl and Schmeisser exhibited the same foam cells, while in Hamburger's case, in which

a cherry-red spot was present, Bielschowsky demonstrated ¹⁸ changes typical of amaurotic family idiocy. The changes in Niemann-Pick's disease are not confined to the liver and spleen, but are universal; they were found in the bone marrow, lymph nodes, hypophysis, kidneys and so forth. The microchemical and histologic studies (Bloom and Kern ¹⁹) showed that this condition (Niemann-Pick's disease) differs from so-called Gaucher's disease (which occurs preferably in adults) and that it is a specific morbid entity. In one of Bloom's cases the brain has been examined by Grinker ²⁰ who states that the ganglion cell changes in the brain were of the "early cell type seen in amaurotic family idiocy." Grinker could not carry out microchemical studies, as the specimens had been for a long time fixed in museum fluids. He kindly placed at my disposal some of the stained sections, study of which revealed changes shown in Fig. 6. The ganglion cells possessed a normal configuration, the dendrons were slightly swollen, tortuous and well stained; some cells contained a few vacuoles and a large pale nucleus which in some cells was misplaced. Other cells in contrast, were shrunken, their nuclei elongated, pale and homogeneous and without chromatin granules. The vacuoles were not of uniform size; they did not form a reticulum as seen in "foam" or gutter cells, nor were the cells bulging. In many cells, again, the vacuoles were large, divided from one another by thin strands of cytoplasm which appeared liquefied and almost entirely destroyed. The changes, in general, were unlike those commonly seen in amaurotic family idiocy or in the viscera in Niemann-Pick's disease. The child died of a severe pneumococcus meningitis which probably was also responsible for some cell changes such as liquefaction. I am unable to tell whether other changes were those of an "early stage" of amaurotic idiocy or were of some other origin.

It is unfortunate that the brain was studied histologically—rather incompletely—only in three of twelve cases of Niemann-Pick's disease recorded. The sutides were confined to the viscera, while in amaurotic family idiocy they only occasionally include organs other than the brain. Structural changes as described in Niemann-Pick's disease are not mentioned in amaurotic family idiocy, but the chemical changes are found to be alike. In both, phosphatids are present—in the central nervous system in amaurotic idiocy and in the viscera in Niemann-Pick's disease. So far one is hardly justi-

fied in claiming that the latter and Tay-Sachs disease are one morbid condition. If they are, the process preferably affects in the former the viscera; in the latter, it preferably involves the central nervous system. L. Pick¹⁰ considers amaurotic family idiocy a partial manifestation of Niemann-Pick's disease. He maintains that in the former the central nervous system is affected "without other morphologic changes of the latter being noticeable." It is obvious that further studies are necessary. They should cover both the central nervous and the visceral systems. Combined pathologic, neuro-histologic and careful clinical studies if carried out in every case of a mental or nervous disorder, may contribute to the progress of neuro-psychiatry more than studies of the brain or of the viscera alone.

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DISCUSSION.

DR. MORGAN B. HODSKINS (Palmer, Mass.).—I would like to ask Dr. Hassin one question. In the case from which the specimen was taken that showed atrophy of the cerebellum, I would like to inquire if that was one of the cases that had convulsions.

DR. WALTER FREEMAN (Washington, D. C.).—It is not altogether easy to see why these patients should present this phenomenon of so-called decerebrate rigidity. It is due to the cortical cells. We may also point to degeneration of the cells in the spinal cord. Presumably the nervous impulses are not interrupted by this peculiar degeneration of the ganglion cells, so that the exact reason for the decerebrate rigidity remains unclear. Probably Dr. Hassin has some ideas on this subject.

DR. WILLIAM MALAMUD (Foxborough, Mass.).—I would like to know whether Dr. Hassin has made any topistic studies in his cases, and whether he found any pathoclitic changes especially in the occipital lobe. I was thinking particularly of the OC γ formation.

I also would like to ask Dr. Hassin whether in his Hortega stains he found any tendency of the microglia to take up the waste products.

PRESIDENT MEYER.—Is there any further discussion? To me it appears most interesting that we deal here with one of those conditions that give us rare opportunities to see whole processes in structural pictures. A great

deal of chemistry must be implied in the neuro-psychiatric processes and brain alterations, and we may want to study it in connection with the neuro-psychiatric conditions. Here we have a process in which the structural alterations are so palpable, and, it seems to me, bring us fairly close to an understanding of just what is happening. The kind of thing that has figured so strongly in the attempt to determine the schizophrenic process in the studies of Alzheimer was similarly an investigation of the "abbau" of the nervous system, that is, a study of the regressive changes.

It is, I think, eminently important to heed Dr. Hassin's urgent advice in these cases; in the first place not merely to go for the brain to get "the pathology," but to take into consideration the organs that support the brain, and, finally, the entire live individual in whom we may be able, through progressive studies of the enzymes and various controlling factors, to get at things which nature furnishes us by contributing to the museum of peculiar occurrences.

I cannot help but feel that the picture that Dr. Hassin has given us ought to leave with all of us a realization that we must not yield to the trend of the present time, to try to explain everything by dynamic words. They may pacify our feelings. They may adjust to some extent the relation of the patient to the world, but they do not make unnecessary the work on the fundamental correlations. For, after all, we are duty bound to seek the physiological and structural side as well as that part of the functional sphere which Dr. Orton outlined to us yesterday in his statement of the three levels.

I think the Association and our co-workers in neuropsychiatry generally need every possible encouragement to recognize that we are at present at something of too low an ebb of interest in the anatomical aspects, but that if we want to do anything with the anatomical aspects, we ought to recognize the fact that there are brains that are interesting as such, no matter what we know concerning the clinical aspects and that they ought not to be thrown away. Many brains present quasi experimental lesions that would be a treasure to any laboratory and should not be buried. There are brains which become particularly interesting if we have also the other organs.

You will have to pardon this general appeal in connection with Dr. Hassin's exceedingly interesting and encouraging presentation. Is there any further discussion? If not, I will ask Dr. Hassin to close the discussion.

DR. GEORGE B. HASSIN (Chicago, Ill.) (closing).—As to the cases with atrophy of the cerebellum, all had epileptiform convulsions. I do not know whether all of them had decerebrate rigidity, but as I pointed out in one of my contributions (*Arch. Neurol. and Psychiat.* 16:708, 1926), this occurred in the majority of cases of amaurotic family idiocy recorded.

I was glad to hear that one of the speakers has the opportunity of studying five cases which is an enormous amount for the disease in question. As to the topography of the changes in the occipital lobe, I tried to demonstrate it with my colored lantern slides, but they evidently failed to show them, for colored slides require a powerful light. The changes are mainly in the

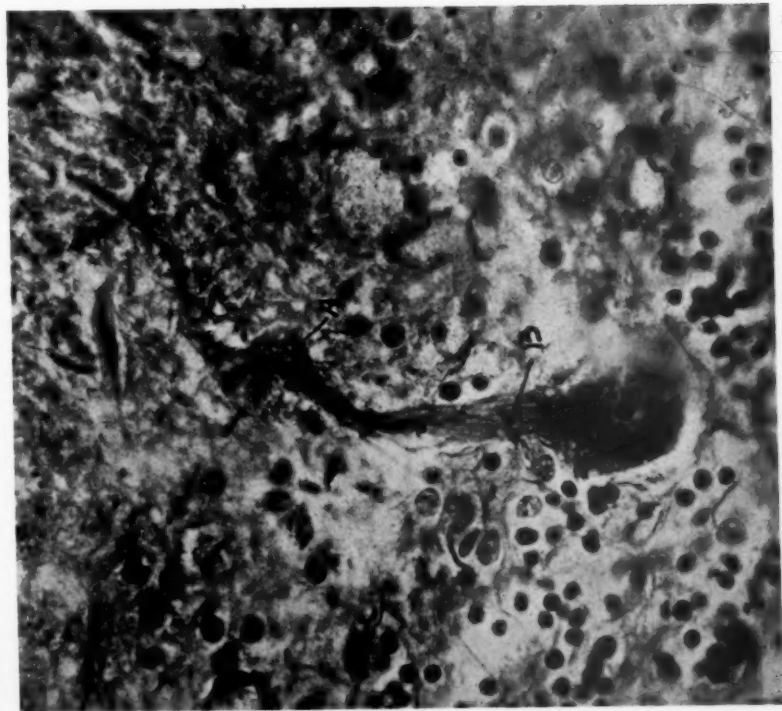


FIG. 1.—Infantile type of amaurotic family idiocy. A swollen Purkinje cell; the cell body is reticular and expanded; the apical dendron exhibits at A a marked swelling; the fibrillary structure (at B) is quite marked. Bielschowsky stain X 560.



FIG. 2.—Infantile type of amaurotic family idiocy. Spinal cord cells show around the nucleus numerous Nissl bodies; the rest of the cell (at s.) is unstained. Toluidin blue stain X 600.

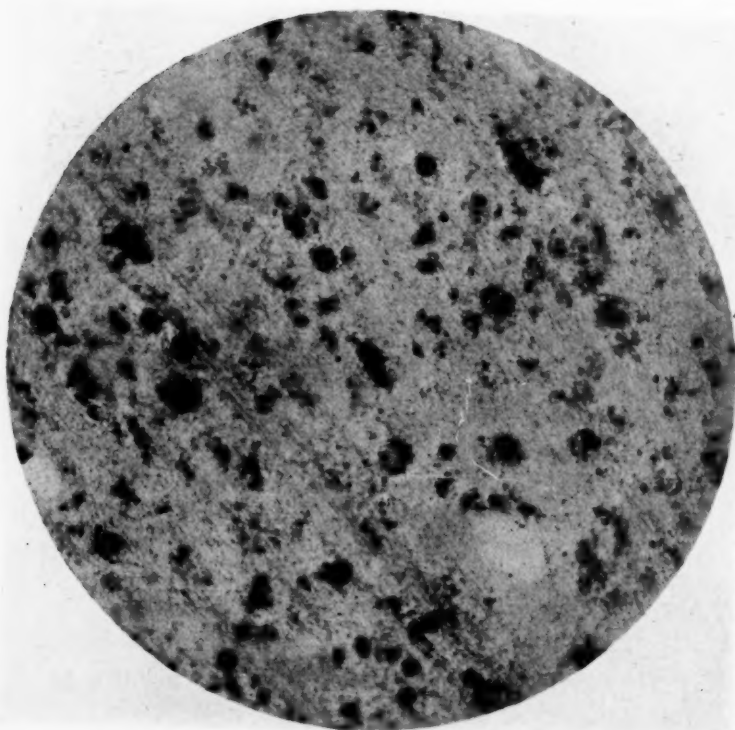


FIG. 3.—Amaurotic Idiocy. Optic thalamus. The cells are filled with lipoids (dark enclosures). Scarlet red and hematoxylin stain X 150.

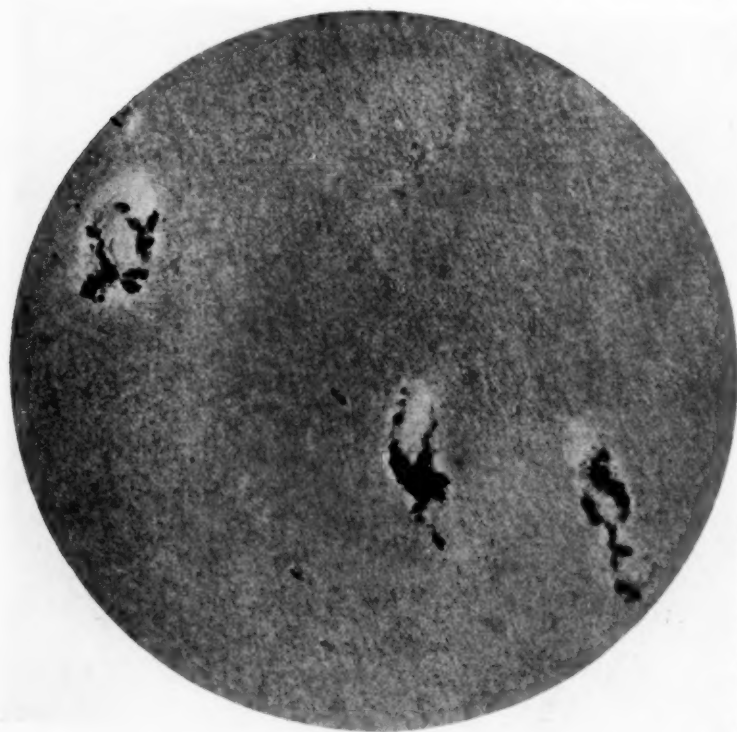


FIG. 4.—Lipoids (neutral fats) in the adventitial spaces. Scarlet red and hematoxylin stain.

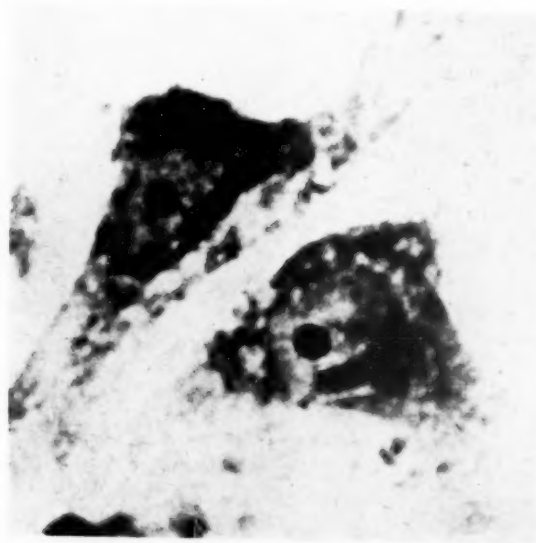


FIG. 6.—Ganglion cell from the brain from a case of Niemann-Pick's disease. Explanations in text.

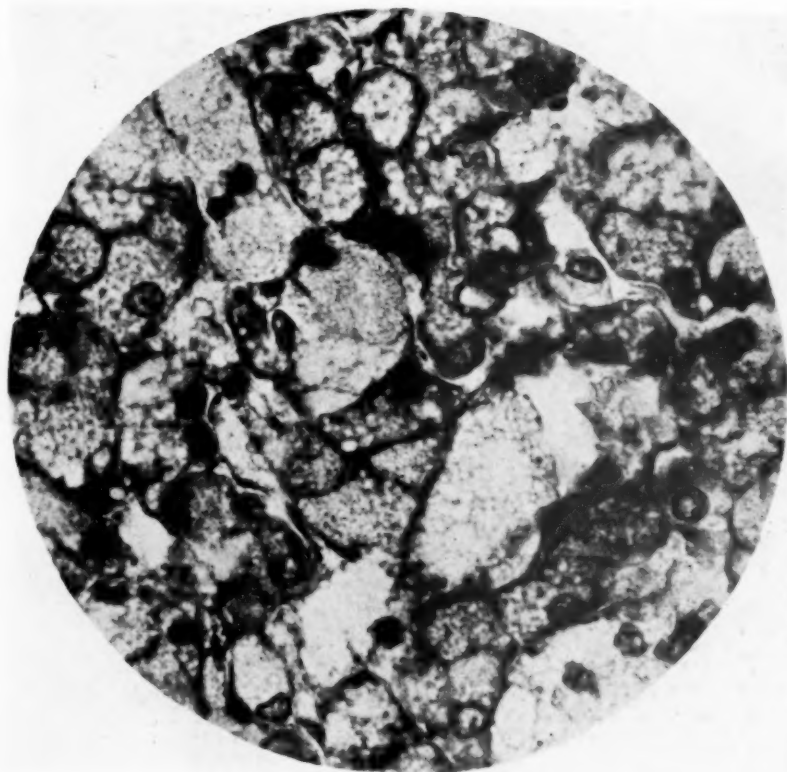
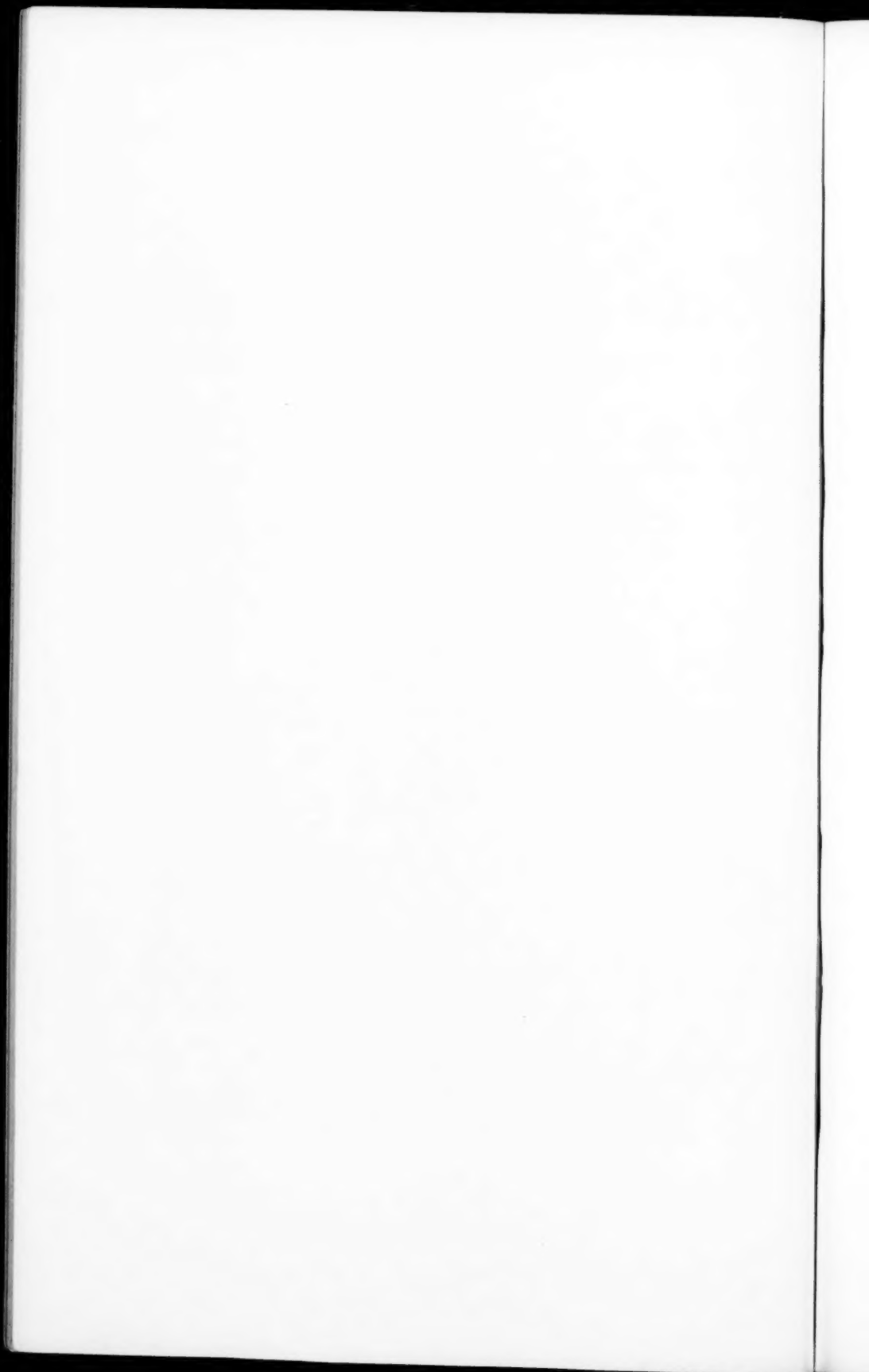


FIG. 5.—"Foam" cells from the liver (Niemann-Pick's disease). Hematoxylin-eosin stain.



third, fourth and fifth cortical layers. I am sorry the light was not strong enough to show this.

Dr. Freeman always manages to ask me difficult questions. Decerebrate rigidity has been extensively studied clinically especially in amaurotic family idiocy. Such cases pathologically can be utilized, in my opinion, only for the purpose of determining whether a certain part of the brain does or does not play any rôle in causation of decerebrate rigidity. For instance, Weed of Johns Hopkins in his splendid studies thought that for decerebrate rigidity one must have an intact red nucleus. In my cases the red nucleus was probably more damaged than any other part of the brain, yet there was decerebrate rigidity. Some again claimed that the cerebellum itself has something to do with it. It can't play any rôle either, because the cerebellum is probably damaged even worse than the red nucleus in some cases. I am unable to explain the mechanism of decerebrate rigidity on the basis of the pathologic studies. In fact I didn't pay sufficient attention to this.

Hortega stains are not of much help in histopathologic studies, but sometimes they are of sufficient help in demonstrating mesodermal tissue. For instance, the vascular supply of the optic thalamus or the cerebellum which I demonstrated have all been made with the method of Hortega.

As to President Meyer's remarks, of course, I can subscribe to every word and wish to thank him for them. I am glad he made them because, for lack of time, I couldn't make them myself.

ORDER OF BIRTH AND SIZE OF FAMILY.

SURVEY OF 10,455 RETARDED CHILDREN IN THE PUBLIC SCHOOLS OF MASSACHUSETTS.*

By NEIL A. DAYTON, M. D.,

Director of Division of Mental Deficiency, Massachusetts Department of Mental Diseases.

This paper reports the findings in reference to Order of Birth and Size of Family resulting from the examinations of 10,455 Retarded Children in the Public Schools of Massachusetts.

It would not be fitting to present the results of these examinations without mentioning the men who have been responsible for the creation of the school clinic system and its successful continuance.

Many years of experience in dealing with institutional mental defectives pointed out to the late Dr. Walter E. Fernald the necessity of reaching out into the community and helping mothers of defective children while these children were still young. To satisfy this pressing need, the out-patient department of the Waverley School undertook the examination of about 600 children per annum. However, the problem was of such a scope that it could not be met in this limited manner and Dr. Fernald conceived the thought of projecting his plan to include the public schools. By this means a comprehensive psychiatric examination was provided for the retarded child while the child was still in the early school grades.

In 1915, Dr. Fernald sent out the first travelling clinic from the Waverley School and in 1917 Dr. George L. Wallace sent the second from the Wrentham State School. As time went on, however, it was soon evident that the two clinics would not be able to cover the entire state, and the formation of additional clinics became imperative. Dr. Fernald placed the matter before the Commissioner of Mental Diseases, Dr. George M. Kline, and as a re-

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

Massachusetts Department of Mental Diseases, Statistical Research Project, No. 1, Article III. The writer was aided in the preparation of this paper by Eleanor Grenfell, A. B., and Helen H. Dolan, B. S., Assistants in Research.

sult of their collaboration, in 1921, clinics were created to operate from each of the fourteen institutions under the Department of Mental Diseases. Thus, for the first time an adequate state-wide system of examination was made possible. Dr. Kline saw that the withdrawal of a psychiatrist from the medical staffs of the various hospitals was impracticable, and therefore increased the quota of each institution by one physician and one psychologist to carry on this important work.

Dr. Payson Smith, Commissioner of Education, took an active part in framing the law and outlining and enforcing the school regulations, which have contributed so materially to the school clinic system.

PURPOSES.

The 10,455 examinations * in this study have been used to test the following theories:

(1) That the mentally defective child tends to be the first born of the family, thereby inferring that mental deficiency is a result of birth trauma.

(2) That the mentally defective child tends to be the last born of the family, thereby inferring that mental deficiency is a result of an exhaustion process.

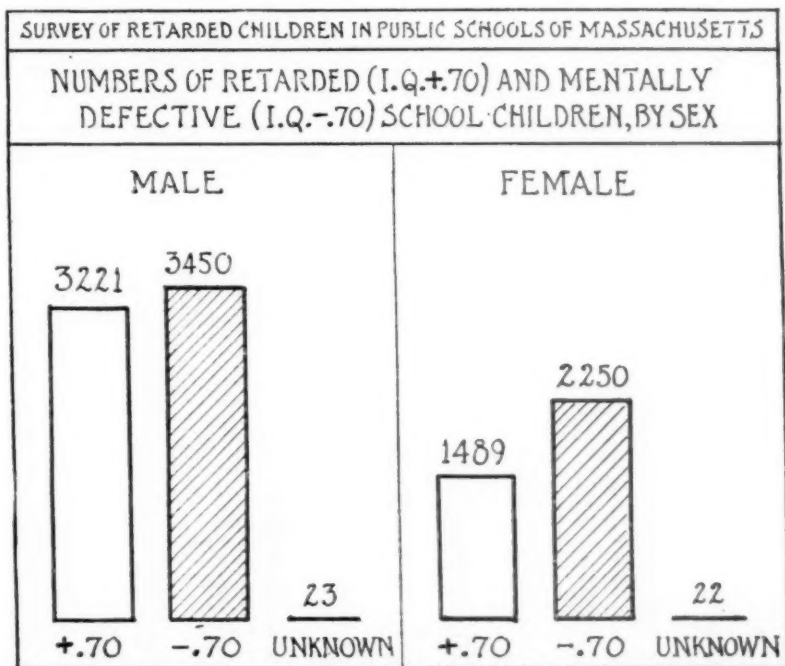
(3) That the mentally defective tend to have large families.

INTELLIGENCE OF CHILDREN EXAMINED.

To avoid the possibility of mixed classification in so far as intelligence was concerned, it was first necessary to divide the examinations according to intelligence groupings, as outlined in Graph I and Table A. Consequently, the retarded children examined were divided into two groups, by sex, (1) those with an intelligence quotient above .70 and (2) those with an intelligence quotient below .70. It will be observed that 6,671 males and 3,739 females, or relatively twice as many boys as girls were examined during the period of this study. This striking difference will be discussed in other publications.

* These examinations were made by clinics in charge of Dr. Esther S. B. Woodward of the W. E. Fernald State School and Dr. Alice M. Patterson of the Wrentham State School for the years 1921-1927. Drs. Ransom A. Greene and George L. Wallace, superintendents of these states schools, have been very cooperative in rendering available to the Department the records of their travelling school clinics.

In Graph I and Table A it will be noticed that the total number concerned is 10,455. In all other graphs and tables, however, the forty-five unknown I. Q.'s are omitted, making the total under discussion throughout the remainder of the paper as 10,410 cases.



DIVISION OF MENTAL DEFICIENCY, MASSACHUSETTS DEPT. OF MENTAL DISEASES

GRAPH I.

TABLE A.

NUMBERS OF RETARDED AND MENTALLY DEFECTIVE SCHOOL CHILDREN, BY SEX.

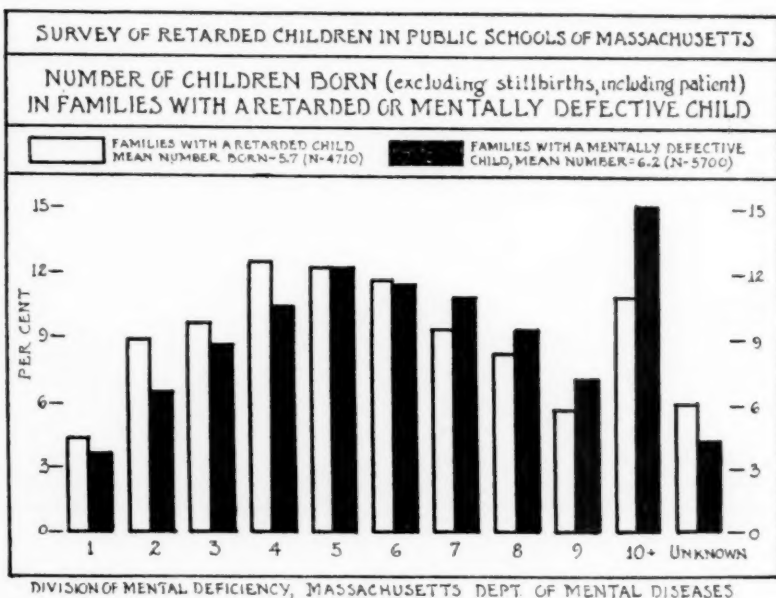
	Retarded (I. Q. + .70)	Mentally Defective (I. Q. - .70)	Unknown	Total
Male	3,221	3,450	23	6,694
Female	1,489	2,250	22	3,761
Total	4,710	5,700	45	10,455

It is not necessary to go into the question of the validity of present day criteria in measuring mental ability. The Stanford Revision of the Simon-Binet, which was used in all tests, will give a rough estimate of what we are pleased to call "intelligence" at

the present date. We know that within twenty-five years the 1928 conception of intelligence will be the "one-hoss shay" of psychology, and so must be satisfied with approximations in view of the non-permanence of our material.

FAMILIES OF DIFFERENT SIZE.

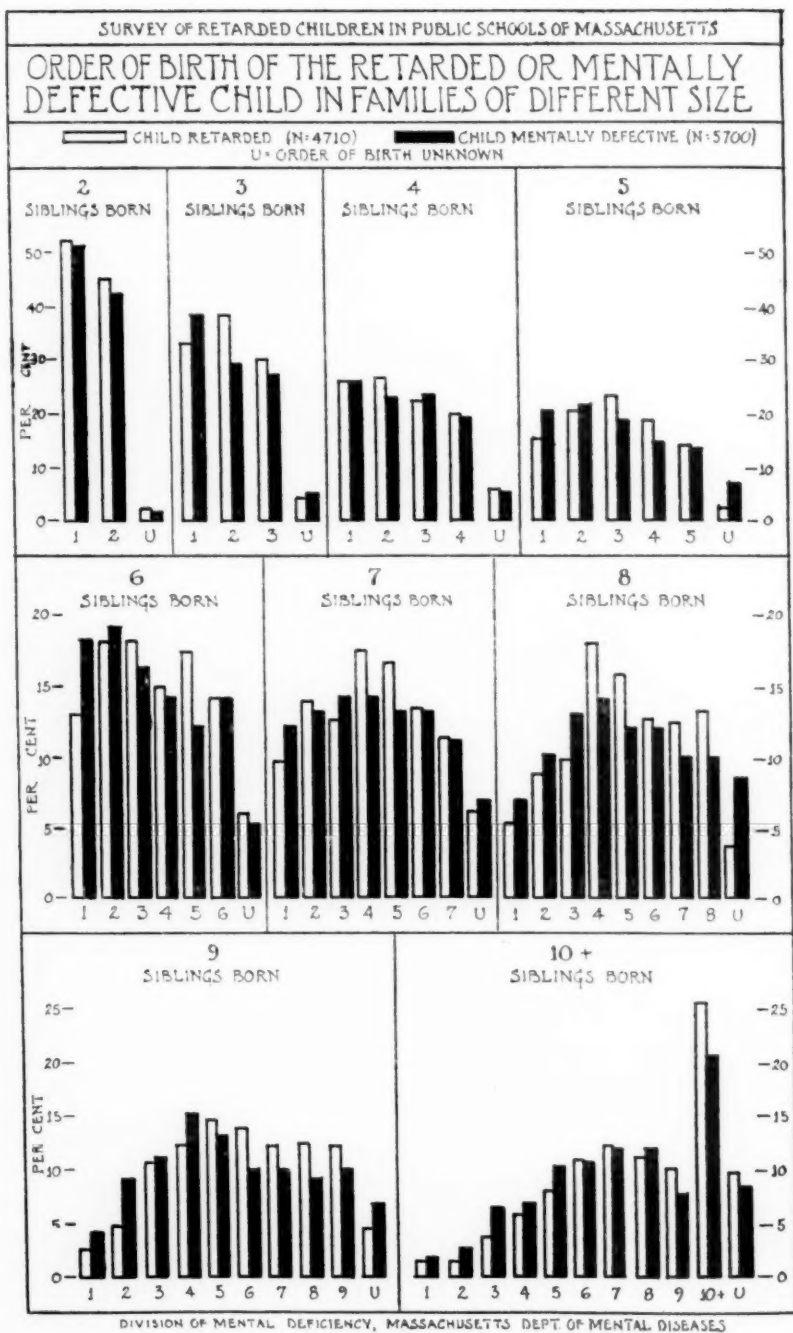
Efforts were first made to answer questions (1) and (2) with reference to order of birth from the material of this sample. Does the mentally defective child come as the first or the last child?



GRAPH II.

To answer this question it was first necessary to obtain (1) the number of families of different size, and (2) the order of birth in these families. Graph II and Table B show the size of family or the number of children born. In families having a retarded child the average number of children ever born (excluding stillbirths) was found to be $5.71 \pm .04$ (S. D.). In families having a mental defective, the number of children born was $6.24 \pm .03$ (S. D.). The difference was .53 and the $\sigma_d = .05$.

These figures are subject to error due to the method of sampling and to overlap of about 10 per cent, but they do reveal that the



cases of lower mental grade tend to come from the larger families. It may be well to mention that this overlap or reduplication was due to the fact that it was not possible to obtain the exact number of families, consequently we have been forced to substitute "children" for "families." After giving due consideration to the matter, however, we believe that this failure makes no appreciable difference in the final result.

ORDER OF BIRTH.

The next step was to take the families of different size and investigate the order of birth. Graph III and Table C show the order of birth in families having from two to ten or more children. There is no uniformity in these results, that is, there is no evidence that the feeble-minded child tends to be either the first or the last in the family. If anything, there appears to be a slight tendency for the feeble-minded to occur in the middle of the family, particularly in the larger families.

Thus, points one and two of our study have been answered. There was no evidence that the feeble-minded child came as either the first or the last child in the family.

NATIVITY OF MOTHER.

It is generally known that there is a difference between the number of children born to native and foreign-born mothers, in that the foreign-born produce about one child more per family. Inquiry into this factor in our material showed that native-born mothers were decidedly in the minority in both groups. The question then arose: Is this an abnormal distribution for Massachusetts? Do the native and foreign-born in the general population balance in this way? To answer this, it was necessary to obtain the numbers of native-born and foreign-born white females (ages 20-44) in the population of the towns surveyed, and make a comparison with the nativity of the mothers in our group. Graph IV and Table D give these figures from the 1920 census with adjustments for villages. It would have been preferable to use the 1910 census, as these children were born between 1910 and 1920, but the figures were not available. The 1910 figures would have given a smaller percentage of foreign-born women of the age period under discussion, and would have made

TABLE C.—Continued.

Number of Siblings Born in Family.		1	2	3	4	5	6	7	8	9	10+	Unk.	Total
<i>Four</i>													
Retarded													
Male	.....	105	111	91	77							20	404
Female	.....	48	44	42	40							11	185
Mentally Defective													
Male	.....	80	83	89	67							24	343
Female	.....	76	58	55	50							13	252
<i>Five</i>													
Retarded													
Male	.....	52	79	96	80	56						29	392
Female	.....	36	42	46	31	26						4	185
Mentally Defective													
Male	.....	92	98	88	74	62						33	447
Female	.....	57	56	49	35	36						16	249
<i>Six</i>													
Retarded													
Male	.....	51	62	72	65	65	60					24	399
Female	.....	21	30	26	16	30	16					9	148
Mentally Defective													
Male	.....	61	79	62	55	47	56					18	378
Female	.....	58	44	45	38	33	40					17	275
<i>Seven</i>													
Retarded													
Male	.....	25	42	36	53	59	41	37				20	313
Female	.....	17	19	19	24	14	18	13				7	131
Mentally Defective													
Male	.....	41	50	48	59	52	53	46				29	378
Female	.....	36	35	40	32	32	29	24				15	243

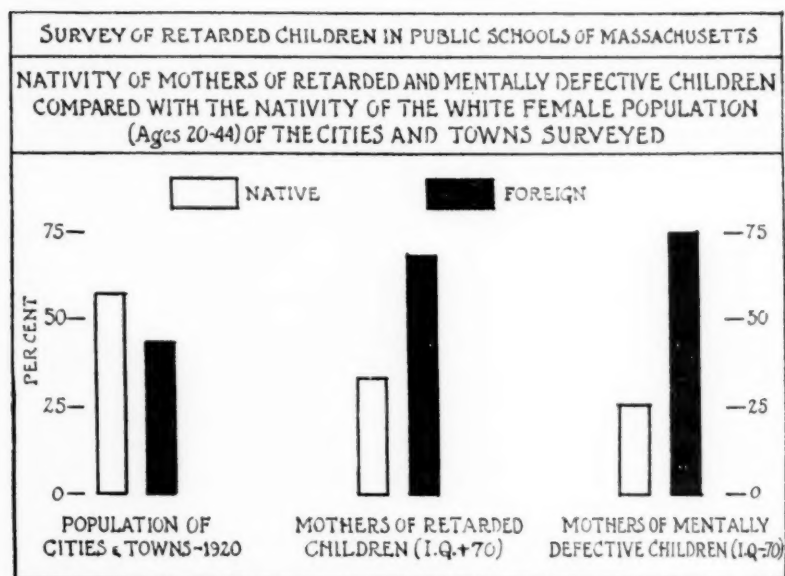
TABLE C.—Continued.

Number of Siblings Born in Family.	1	2	3	4	5	6	7	8	9	10+	Unk.	Total
<i>Eight</i>												
Retarded												
Male	13	20	26	45	41	31	36	33			11	256
Female	8	15	13	25	21	19	13	19			4	137
Mentally Defective												
Male	25	32	44	48	47	38	32	39			25	330
Female	15	24	28	28	20	30	24	19			21	209
<i>Nine</i>												
Retarded												
Male	5	8	18	19	23	22	20	27	27		7	176
Female	2	5	11	14	17	16	13	7	6		5	95
Mentally Defective												
Male	10	22	26	38	28	28	28	21	25		16	242
Female	6	16	18	23	24	15	16	16	17		12	163
<i>Ten</i>												
Retarded												
Male	5	4	13	22	28	38	40	40	36	82	28	336
Female	2	3	6	8	13	18	23	18	16	49	23	179
Mentally Defective												
Male	10	15	31	33	53	66	61	68	45	123	40	545
Female	7	6	24	25	35	28	43	36	23	63	31	321
<i>Unknown</i>												
Retarded												
Male	0			1							165	166
Female	1			0							114	115
Mentally Defective												
Male	0					0					108	108
Female	1					1					138	140

TABLE C.—Continued.

Number of Siblings Born in Family.	1	2	3	4	5	6	7	8	9	10+	Unk.	Total
<i>Sub-Total</i>												
Retarded												
Male	662	572	454	362	272	192	133	100	63	82	329	3221
Female	309	258	199	158	121	87	62	44	22	49	180	1489
Mentally Defective												
Male	673	567	472	374	289	211	167	128	70	123	314	3418
Female	494	372	308	231	180	143	107	71	40	63	273	2282
Total	2138	1769	1433	1125	862	663	469	343	195	317	1096	10410

the contrast even more striking. By using the more conservative 1920 figures, it was found that the foreign-born females, aged 20-44, comprised 43 per cent of the total female population of a corresponding age in the towns surveyed. When considering the



DIVISION OF MENTAL DEFICIENCY, MASSACHUSETTS DEPT. OF MENTAL DISEASES

GRAPH IV.

TABLE D.

**NATIVITY OF MOTHERS OF RETARDED AND MENTALLY DEFECTIVE CHILDREN
COMPARED WITH THE NATIVITY OF THE WHITE FEMALE POPULATION
(AGES 20-44) OF THE CITIES AND TOWNS SURVEYED.**

Nativity	White female population-1920 (ages 20-44)	Mothers of retarded children	Mothers of mentally defective children
Native	136,450	1,363	1,301
Foreign	102,582	2,932	4,008
Total	239,032	4,295	5,309

foreign-born mothers of retardates and mental defectives in our groups, however, we found that these percentages had increased to 68 and 75 respectively.

There are several elements which should be considered in this connection. The foreign-born mothers of the towns surveyed have had more children than the native mothers, and therefore the chance of having a child fall in one of our groups is greater. Also, the child from a non-English speaking home has obvious difficulties that are not encountered by children of native parents. He may be retarded in school because of social, economic or personal difficulties, not necessarily dependent upon intelligence. At the same time, it must be remembered that over 70 per cent of the children considered in this study were *three years* retarded. The average child from a foreign home would probably have adjusted to the language difficulty within a three-year period. An attempt to make an adjustment for these factors resulted in a correction of approximately 5 per cent.

SIZE OF FAMILY.

The question of the size of family was the third point investigated. We wished to ascertain whether or not the feeble-minded had larger families. This question was difficult to answer. Inasmuch as we had examined the children and *not* the parents, how were we to select the parents who were mentally defective? We were left to depend upon the social workers, school nurses and teachers who had visited the homes and rendered *opinions* as to the mental condition of the parents interviewed. Most of the items covered in the histories of our cases were based on facts and could be accepted. But this one factor was based on personal opinion. Reliable as our present workers are, they are neither psychiatrists nor psychologists and we ask too much when we expect an accurate diagnosis based on a few moments' conversation. The certainty of variation is overwhelming.

To temporarily lay aside our impressionistic data and build on a factual basis, it became necessary to restate the question in this form: Are the families having a retarded or mentally defective child larger than the ordinary run of families in the general population?

In determining size of family we are offered two methods of approach: (1) To compare a group which is in various stages of completion with another group which is in various stages of completion; (2) to select mothers who are forty-five years of age or

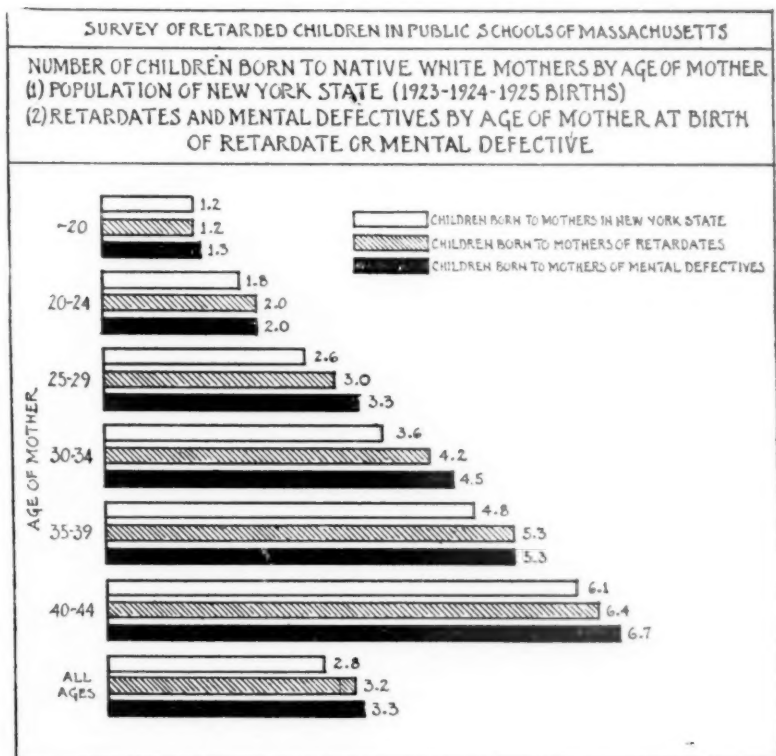
more, consider these families as completed, and observe the number of children born to these completed families. We will use method (1) to compare our groups of incomplete families with another group of incomplete families. That is, certain families in our groups having one or two children have not had the opportunity to have more because of the age of the mother. These families will be balanced by families in the other incompleting group which have had but one or two children, provided that the distribution of the ages of the mother is approximately the same in both groups. This factor must be carefully considered. While the individual age groups will not be influenced by lack of symmetry the total number born for all ages will vary in accordance with the ages of the mothers.

For comparison, the 1923, 1924 and 1925 reports of "Order of Birth by Age of Mother" from the New York State Vital Statistics were selected. As no children considered in our study came from Boston, and the New York reports were exclusive of New York City, it was possible to compare non-metropolitan Massachusetts with non-metropolitan New York. To preserve the comparison our groups were taken at the time of the birth of the retarded or mentally defective child, by age of mother. That is, births were compared with births, and note was made of the size of the families of the two groups at the time of the birth. The present status of the families could not be compared as to size for the reason that our families were older than the families having a child born in 1923, 1924, and 1925. Consequently our average number of children born was larger than that of the New York group. However, if our figures are taken back to the time of the birth of the retarded or mentally defective child, all the children who have been born afterwards are automatically withheld from that family. In this way our group is placed in the same class with the report of births of any other group, irrespective of time. We preserved the size of the family at the birth of that particular child by age of mother.

It is to be remembered at this point that there were no consistent differences in order of birth. It can be seen that if the retardates or mental defectives tended to come late in the family, the family would automatically be larger at any selected age of the mother. If the retardates or mental defectives tended to come earlier, the

family would be smaller than should be the case. In so far as the retardate or mental defective was not markedly displaced in the order of birth, there is no reason to believe that his average position should greatly affect the size of the family at his birth.

Graph V and Table E show the number of children born by age of native mother. Quite uniformly in each age-of-mother group,



DIVISION OF MENTAL DEFICIENCY, MASSACHUSETTS DEPT. OF MENTAL DISEASES

GRAPH V.

there are more children born to native mothers in our group, than to native mothers in the population of New York State. Families having a retardate are larger than the average families in the general population and families having a mental defective are still larger. That is, for each age of mother we see a consistent difference. In the totals for all ages there is also a substantial difference.

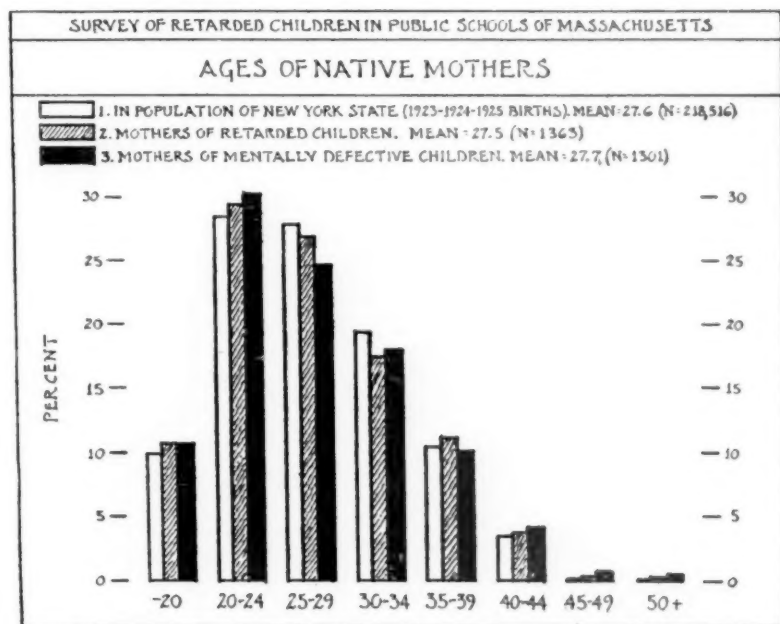
TABLE E.
NUMBER OF CHILDREN BORN TO NATIVE WHITE MOTHERS BY AGE OF MOTHER.

(1) Births in New York State (1923, 1924, 1925).

(2) Retardates and Mental Defectives, by Age of Mother at
Birth of Retardate or Mental Defective.

Births	Age groups						All ages
	-20	20-24	25-29	30-34	35-39	40-44	
In New York State.....	1.2(21325)	1.8(62487)	2.6(61371)	3.6(42575)	4.8(23148)	6.1(7023)	2.8(218516)
To Mothers of Retardates.....	1.2(140)	2.0(375)	3.0(343)	4.2(222)	5.3(140)	6.4(46)	3.2(1363)
To Mothers of Mental Defectives. 1.3(131)		2.0(368)	3.3(298)	4.5(218)	5.3(120)	6.7(50)	3.3(1301)

Graph VI and Table F give the ages of the native mothers of our groups compared with the New York groups. There is very little disturbance in the various age groups and the means are practically identical. Quite incidentally this throws considerable light on the oft-repeated contention that the mentally defective are born to very young or very old mothers. There is no indication from this material that the ages of the native mothers of retardates or



DIVISION OF MENTAL DEFICIENCY, MASSACHUSETTS DEPT. OF MENTAL DISEASES

GRAPH VI.

mental defectives varies greatly from those of mothers in the general population.

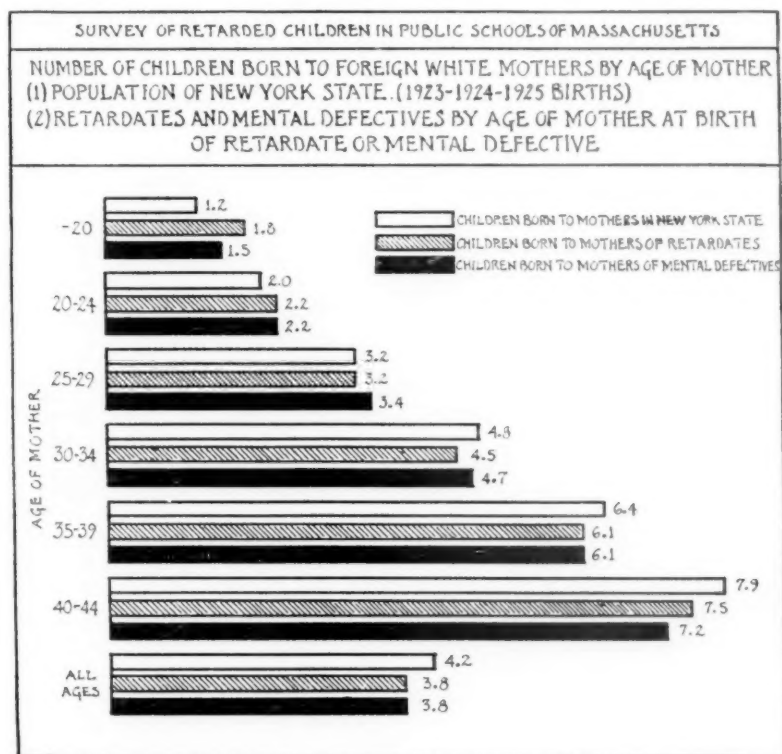
Graph VII and Table G present the situation with regard to foreign-born mothers. The age groups—20, 20-24, and 25-29 years show the same characteristic larger families that were observed in all age groups of native mothers. The older age groups from 30 years up show smaller families than our foreign groups. The totals are also smaller. Why the older foreign mothers of retardates or defectives should have smaller families than foreign mothers of the

TABLE F.
AGES OF NATIVE MOTHERS.

(1) Population of New York State (1923, 1924, 1925 births).
(2) Mothers of Retarded Children.
(3) Mothers of Mentally Defective Children.

	Age groups								Unk.	Total
	-20	20-24	25-29	30-34	35-39	40-44	45-49	50+		
Mothers in N. Y. State.....	21,325	62,487	61,371	42,575	23,148	7,023	507	13	67	218,516
Mothers of Retarded Children.....	140	375	313	222	140	46	7	1	89	1,363
Mothers of Mentally Defective Children.....	131	368	298	218	120	50	11	6	99	1,301
	Mode		Median		Mean		S. D.			
Mothers in N. Y. State.....	22.45		27.00		27.66		±.01			
Mothers of Retarded Children.....	22.45		26.71		27.58		±.18			
Mothers of Mentally Defective Children.....	22.45		26.66		27.72		±.19			

same age groups in the general population is not clear and offers a fertile field for further investigation. Some unknown factor is restricting the size of family of foreign-born mothers in the older age groups, which is not operating in foreign-born mothers under thirty nor in native mothers of all ages.



DIVISION OF MENTAL DEFICIENCY, MASSACHUSETTS DEPT. OF MENTAL DISEASES

GRAPH VII.

When we study the ages of the foreign-born mothers as seen in Graph VIII and Table H we see a result which has a definite bearing on the totals for all ages. The foreign mothers of our group are younger than the foreign mothers of New York. This results in an elevation of the totals of children born for all ages in the New York group. The larger numbers of older mothers having children will contribute larger families to the totals and thereby raise the

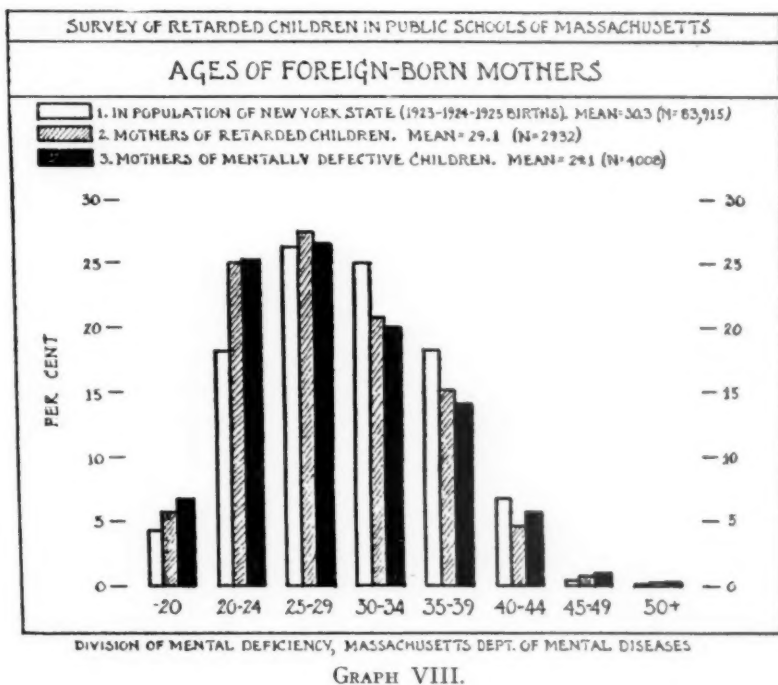
TABLE G.
NUMBER OF CHILDREN BORN TO FOREIGN WHITE MOTHERS BY AGE OF MOTHER.

(1) Births in New York State (1923, 1924, 1925).

(2) Retardates and Mental Defectives, by Age of Mother at
Birth of Retardate or Mental Defective.

Births	Age groups						All ages
	-20	20-24	25-29	30-34	35-39	40-44	
In New York State.....	1.2 (3298)	2.0 (15563)	3.2 (22127)	4.8 (21210)	6.4 (15888)	7.9 (5284)	4.2 (83015)
To Mothers of Retardates.....	1.8 (150)	2.2 (694)	3.2 (764)	4.5 (566)	6.1 (421)	7.5 (118)	3.8 (2032)
To Mothers of Mental Defectives. 1.5 (246)		2.2 (937)	3.4 (983)	4.7 (748)	6.1 (526)	7.2 (213)	3.8 (4008)

means to a higher level. While we could not question the findings in reference to the comparison between the individual age groups, we were justified in scrutinizing our sources having a bearing on the totals. Has restricted immigration resulted in relatively fewer younger foreign mothers in New York? This restricting influence of immigration was not apparent when the children of our groups were born (approximately 1910-1917). While the number of children born to foreign mothers in New York State was 4.2 the aver-



age for the entire country for 1924 was 3.9. The average of 3.9 is higher than our figures of 3.8 and suggests that our finding, as recorded, is probably a fact. This fact has been exaggerated by the effect which restricted immigration has had on the age distribution of foreign-born mothers in New York State. We apparently have the fact before us that for some reason, at present unknown, the foreign mothers of retardates above the age of thirty are having smaller families than foreign mothers in the general population. Suggestions are only guesses, but we wonder if the

TABLE H.
AGES OF FOREIGN-BORN MOTHERS.
(1) Population of New York State (1923, 1924, 1925 births).
(2) Mothers of Retarded Children.
(3) Mothers of Mentally Defective Children.

	Age groups									Total
	-20	20-24	25-29	30-34	35-39	40-44	45-49	50+	Unk.	
Mothers in New York State.....	3,298	15,563	22,127	21,210	15,888	5,284	514	12	19	83,915
Mothers of Retarded Children.....	150	694	764	566	421	118	27	4	188	2,932
Mothers of Mentally Defective Children....	246	937	983	748	526	213	42	8	305	4,008
	Mode		Median		Mean		S. D.			
Mothers in New York State.....	27.45		30.19		30.38		±.02			
Mothers of Retarded Children.....	27.45		28.38		29.11		±.12			
Mothers of Mentally Defective Children....	27.45		28.33		29.13		±.11			

foreign mothers of our group had their children more rapidly and at younger ages. This possibility suggests itself as it will be seen later that the completed families of foreign-born-mothers of our groups are not smaller.

COMPLETED FAMILIES.

The second method of investigating the size of families remains for discussion. That is, the method of taking the number of children born to women forty-five years or older. We have taken the mothers of our groups who were thirty-five years of age or over at the birth of the child and considered these families as completed. In so far as the mean age of children examined was twelve years and the mothers were thirty-five years or more at the birth of these children, the present age of mother was forty-seven years or more. There is a slight error in considering families as completed who have a retardate or defective under nine years of age. These, however, are in the minority and the error is small.

To make a comparison between the number of children ever born to families producing intelligent children and the number ever born to families producing retarded children, we will use two groups of families producing presumably gifted children.

(1) Families with a gifted child (Intelligence quotient 1.40+) reported by Terman.*

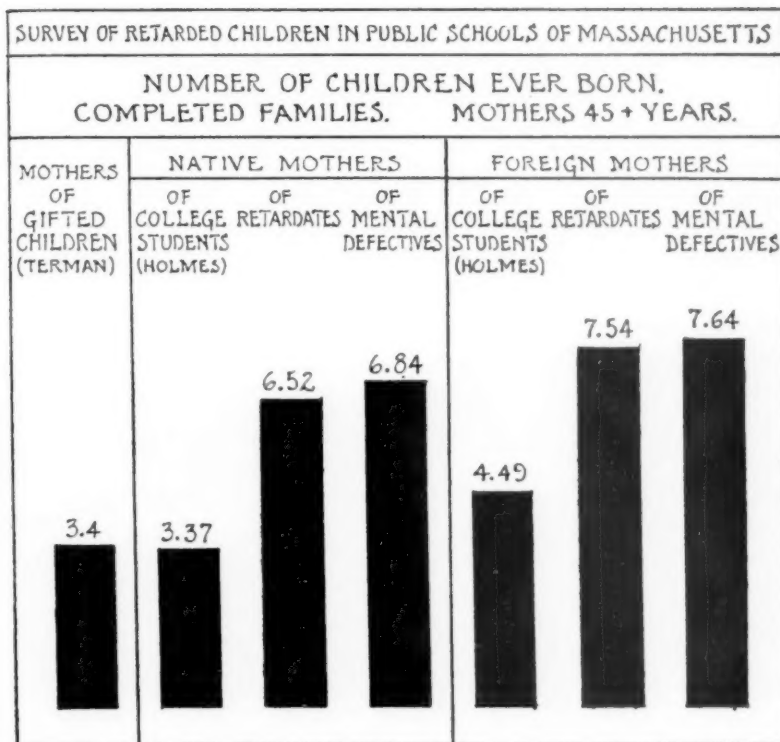
(2) Families of College Students reported by Holmes.† This gives a contrast between the number of children being produced by families with a child in the upper levels of intelligence, and the number of children being produced by families with a child at the opposite end of the intelligence scale. Graph IX and Table I give us the figures. It is a striking illustration of the difference in the fecundity of mothers producing the more intelligent and mothers producing the less intelligent children. These figures have been corrected for sampling in Table J. This correction removes the error which is due to the inevitable selection of larger families, because of the fact that there is a greater opportunity for the larger families to have a child fall in any selected group simply by chance.

* Terman, L. M.: *Mental and Physical Traits of a Thousand Gifted Children*. Stanford University Press, California. 2d Edition, 1926.

† Holmes, S. F.: *The Fertility of the Stocks Which Supply College Students*. *Journal of Heredity*. 18: 235-239. July, 1926.

TABLE I.
NUMBER OF CHILDREN EVER BORN. COMPLETED FAMILIES. MOTHERS 45+ YEARS.

TO MOTHERS OF GIFTED CHILDREN (TERMAN) ¹															
1	2	3	4	5	6	7	8	9	10	11	Total	Mean			
19	22	16	11	7	7	3	2	2	0	2	91	3.4			
TO MOTHERS OF COLLEGE STUDENTS (HOLMES) ²															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total	Mean
Native	426	792	682	451	282	186	100	56	41	17	7	2	2	3051	3.37
Foreign	54	112	145	108	101	81	56	33	21	17	10	2	4	745	4.49
TO MOTHERS OF RETARDED CHILDREN															
1	2	3	4	5	6	7	8	9	10+	Unk.	Total	Mean	S. D.		
Native	6	20	11	14	23	28	17	20	14	39	2	194	6.52	±.21	
Foreign	10	17	24	43	64	54	51	81	61	164	2	571	7.54	±.11	
TO MOTHERS OF MENTALLY DEFECTIVE CHILDREN.															
1	2	3	4	5	6	7	8	9	10+	Unk.	Total	Mean	S. D.		
Native	8	14	15	12	19	20	20	14	16	49	0	187	6.84	±.23	
Foreign	12	20	30	55	73	81	90	108	89	225	7	790	7.64	±.09	



DIVISION OF MENTAL DEFICIENCY, MASSACHUSETTS DEPT. OF MENTAL DISEASES
GRAPH IX.

TABLE J.

NUMBER OF CHILDREN EVER BORN TO MOTHERS OF GIFTED CHILDREN AND
BACKWARD CHILDREN: COMPLETED FAMILIES.

	Uncorrected mean	Corrected for sampling	Corrected for childless marriages
Gifted Children	3.40	2.18	1.80
Retarded Children (Native Mothers) ..	6.52	4.52	3.76
Mentally Defective Children (Native Mothers)	6.84	4.56	3.79
Retarded Children (Foreign Mothers) ..	7.54	5.79	4.81
Mentally Defective Children (Foreign Mothers)	7.64	5.99	4.98

It is recognized that our figures are only rough aggregates and are no indication of the fecundity of the social levels from which these children are born. They represent only the children produced by the married portion of the social levels involved. This immediately suggests the question of a higher marriage rate among persons of this level as compared with other levels. Not all of these marriages result in children and again we wonder if the fecundity of our group is higher than that of the groups used for comparison. In correcting for childless marriages the 17 per cent deduction of Lotka* was used. The matter of celibacy in these groups is probably not of serious import.

It is also to be questioned whether or not the presence of the defective child is a determining factor in limiting the size of family. Unless the child be of extremely low-grade type the diagnosis is not made until he is in school and by that time several other children could have been born. We can understand how the Mongolian, a definite pathologic entity, is the last born of the family. The family automatically stops at his birth. The lack of disturbance in the order of birth of our group makes us believe that voluntary discontinuance of the family is not a common occurrence.

In Table J we present the results of the above corrections compared with Terman's figures. From the corrected figures we see that each individual from the social stratum of our group is producing from 1.88 to 2.49 children as compared with .90 for Terman's figures. The individuals of the social level of our group are more than maintaining themselves, while the individuals from the other end of the scale are obviously not maintaining themselves.

SUMMARY.

- I. The order of birth of the retardate or mentally defective child is apparently of little significance.
- II. The foreign-born mothers (43 per cent of the population of the towns surveyed) are over-represented as mothers of our group. They make up 68 per cent of the mothers of retarded children and 75 per cent of the mothers of mentally defective children.

* Lotka, Alfred J.: Sterility in American Marriages. Proceedings of the National Academy of Sciences, 14: 99. January, 1928.

III. Families having a mentally defective child [I.Q. $-.70$; mean $= 6.24 \pm .03$ (S. D.)] show a tendency to be larger than families having a retarded child [I.Q. $+.70$; mean $= 5.71 \pm .04$ (S. D.)]. These figures include all families, both complete and incomplete.

IV. Native-born mothers of retardates and mental defectives in our group have larger families than native mothers of the same age groups in New York State. This condition applies also to foreign-born mothers of retardates and mental defectives of the age groups—20, 20-24, and 25-29 years. Foreign-born mothers of the age groups 30 years and over show a tendency to have smaller families than foreign mothers of the same age in the general population.

V. The mean number of children ever born in completed families is recorded as follows by mental condition of child and nativity of mother:

Native-born mothers of retardates (I. Q., $.70 +$)	$= 6.52 \pm .21$ (S. D.).
Native-born mothers of mental defectives (I. Q., $-.70$)	$= 6.84 \pm .23$ (S. D.).
Foreign-born mothers of retardates (I. Q., $.70 +$)	$= 7.54 \pm .11$ (S. D.).
Foreign-born mothers of mental defectives (I. Q., $-.70$)	$= 7.64 \pm .09$ (S. D.).

VI. In this sample, completed families with a child in the lower levels of intelligence are approximately twice as large as completed families with a child in the upper levels of intelligence. The stocks represented in this sample which are producing retarded or mentally defective children are more than maintaining themselves.

DISCUSSION.

PRESIDENT MEYER.—Is there any discussion of this paper? If not, we will have to speed on with the rest of the program. It is rather a pity it isn't possible to take some statistics on the number of graphs that any audience can follow.

DR. JOHN LEVY (Fellow, National Committee Mental Hygiene).—I would like to compliment Dr. Dayton on this very excellent paper. Most workers tackling a problem of sociological significance fall into one of two errors. They generalize from insufficient number of cases or they fail to establish a normal or control group to compare against their experimental group. Dr. Dayton has fallen into neither of these pitfalls.

I am particularly interested in this type of study because I made a similar study on children showing behavior deviation other than mental deficiency. Unfortunately my group was not as large as it should be. That defect is now being corrected. My results agree with those presented by Dr. Dayton this

afternoon. The distribution of the size of family for problem children studied parallels that found in the population generally of the same community. This finding has significance for the psychiatrist because it hits at the generally accepted myth that the only child is more frequently a problem than children belonging to larger families. He may be, but the clinician has no statistical evidence to support his point of view.

I wonder whether Dr. Dayton has given sufficient attention to one factor which if used selectively might modify his results. I refer to the economic factor. Is the order of birth and size of family more significant higher up the social scale? We know that better class families have smaller families and more intelligent families. Would a study of only better grade families add refinement to his results? My own study of this differentiating factor is not proving very satisfactory because of the difficulty of getting a sufficient number of cases, but it may eventually show that when one deals only with rich communities children in smaller families are more frequently problems than children in larger families in such districts. Similarly Dr. Dayton may find that where mental deficiency does occur in better class groups the incidence of such deficiency in relation to size of family may not parallel the normal distribution curve for that group.

PRESIDENT MEYER.—I will ask Dr. Dayton to close the discussion.

DR. NEIL A. DAYTON (Boston, Mass.).—We are really handicapped, of course, in only being able to present a few points in a study of this sort. We have to condense and put all of our cards into a very, very small package and present them. For that reason, of course, I have been unable to cover many points that should be covered. There is an economic factor in this problem, but we haven't the time to go into it at the present time. It has some bearing upon size of family, of course, particularly when you get to the class of teachers and professors which they had in the California situation.

However, there is much more detail in the published paper, and I think it will probably answer some of the questions raised.

PSYCHO-ANALYSIS OF SIBLINGS.*

By C. P. OBERNDORF, M. D., NEW YORK CITY.

Psycho-analysis deals primarily with unconscious reactions to intra-familial situations, and in most neuroses the nuclear complex concerns itself with the emotional interplay which develops between the child and its parents or its siblings. Analytic investigations have shown very fully how often and intensely these are fraught with jealousy and bitterness, on the one hand, and inordinate affection and indulgence on the other. In the *Œdipus* situation, the child's tender and often sexually colored attachment to the parent, or secondarily to a sibling of the opposite sex, is the momentous impulse. This relationship carries with it as a corollary a greater or lesser degree of antagonism to an older member of the family of the same sex whom the child regards as a competitor enjoying an unfair advantage in age and power in the struggle for the mother's or father's favor, as the case may be.

Aside from this customary *Œdipus* relationship, in which a grandparent, sibling, nurse or teacher may replace the parent as a psychological counterpart, the more frequently encountered reactions in family life are the inverted *Œdipus* in which the patient harbors jealousy toward the parent or parent-image of the opposite sex, and an excessive attachment toward the parent of the same sex, the clash of brothers, and also of sisters, with one another; the dominating identification of one sibling with another of the same or opposite sex, the incestuous and homosexual episodes between siblings in the period of childhood; the resentment, so frequently repressed, toward the latest born child by one or more of his older siblings and the overt enmity or subtle envy of the latter by the younger child.

Psychiatrists dealing objectively with conduct disorders in children emphasize discordant or disrupted home life as the most important single factor in the production of the "problem children." Analytic study of the family reveals that all families are inevitably

* Read at the eighty-fourth annual meeting of The American Psychiatric Association at Minneapolis, June 5, 6, 7, 8, 1928.

potentially disruptable from the moment of their formation, some only more so than others. This depends to no small extent upon the degree to which the contracting parties have successfully resolved their own *Œdipus* attachments at the time of entering into marriage. The advent of the first child while, on the one hand, cementing the union of the couple through increased mutual responsibility, on the other tends to split the libidinous attachment between the parents, a portion of which invests the newcomer and impoverishes to that extent the affection still available to the husband or wife for each other.

If we accept the origin of man as described in *Genesis*, in the history of the first family one finds recorded not only the fratricide by Cain of Abel but an inevitable implication of incest with Eve as the means by which the world was originally populated. On the other hand, if we regard *Genesis* as a myth, analogous to that found in the folk lore of many peoples, the analytic interpretation would be that the writers of the first book of the Scriptures revealed their unconscious incestuous strivings in this theory of world formation from a single pair of beings. Possibly the explanation of our customary intellectual evasion of the implications of incest in the biblical story is due to the exceedingly strong repression of such tendencies which training and education have built up in present-day culture.*

The intimacy of life within the family circle is distinguished by more primitive, more violent and less trammelled reactions than in any similar social situation outside of it. Even among adult members of the family—which here includes in-laws—family rows usually begin upon most trivial and flimsy grounds. Their very pettiness may be taken as an indication that any pretext will serve and be considered sufficient cause within the family for the free and usually not very permanent liberation of the affects dependent upon the sensitively balanced parent-sibling relationships. Company manners and behavior demand increased restraint, self-control and abnegation. This the child soon learns not only through direct, interminably reiterated instruction but from observation of the demeanor of its parents, who are not unknown to sigh with

*It has been reported to me that among the negroes of South Carolina folk lore attributes the genesis of the negro race to the union of Ham with a monkey when he wandered away into the wilderness.

relief or even engage in a lively quarrel as soon as the closed door has concealed their smiling faces from departing guests. The cherished freedom of the home probably dawns vaguely upon the child from the moment that it is dressed in stiff and constricting clothes for its first outing.

Home liberty likewise applies to hostile activities, such as the bickering and fighting of children in the nursery and the free disputes of the older children and relatives among themselves. The very word free is decidedly polyvalent connoting sociable and its antonym detached, friendly and its antonym insolent. Home immunity also includes greater scope in the expression of affection and tender associations which are permissible and even encouraged among siblings and which only rigid training and penalties by their elders eventually divest of their sexual strain. Paradoxically there is injected into this liberal familial atmosphere a series of repetitious admonitions by the parents that the children should—even must—love one another. This ethical ideal clashes precipitately with the materialistic and emotional competition into which siblings are inevitably thrown and leads to conflict and compromise. To a child it must appear a curiously contradictory world which encourages an elder brother to love his little sister, yet forbids him to kiss her too frequently or passionately when she becomes a few years older and his own urge to do so increases.

In the analysis of a single patient, the cinema of the family life is visible from one angle only, and although one may attempt to mentally reconstruct what might have been seen had one been present to observe the reel a few years earlier or later, the analysis of siblings makes it possible to expose the picture from two angles and at different periods of time, revealing the divergent unconscious aims and individual strivings of the closely associated children in the same family milieu.

In the course of my experience, I have analyzed five sets of siblings, of which each individual suffered from some form of long-standing distressing and serious neurosis, requiring an analysis lasting from at least six months to several years. The social background, religious influence, financial condition and relative sex and ages of these sets showed wide variations. However, they possessed one characteristic in common—they were children of

self-respecting, well regarded, worthy families, with solicitous, conscientious, well-intentioned mothers. The sets were:

(I) An older sister and younger brother of an old American Jewish family of four siblings with a considerable strain of Gentile intermarriage in the collateral branches.

(II) Brothers, only children of an Italian Catholic family in comfortable circumstances.

(III) Only brothers of an Irish Catholic household in which the family circle consisted of an older sister and three girl cousins about the same age as the brothers. This family saw real poverty during the childhood of the patients.

(IV) Brothers, only children, of a wealthy American-Jewish family with strong anti-semitic leanings.

(V) Older sister and brother of a very prosperous puritanical Methodist-Episcopal family containing three children.

The sex and difference in age of the siblings are of momentous importance in the determination of reactions, for it is quite common that the Oedipus situation finds a counterpart in the relationship of the siblings and that forbidden tendencies are worked through in practice under the guise of games, such as playing house, doctor or school. If the older sibling, for instance, be a girl, the junior brother is far more likely to attempt to achieve his sexual goals with her, or at least to center his conscious fantasies upon her in preference to the far removed, well-guarded, unassailable mother, to whom his attachment soon becomes unconscious. However, the latter is nearly always the object of his primary fidelity. Likewise, when a junior brother finds the customary attachment and attraction to his mother awakening in him, he is consciously inclined to regard his older brother more specifically as his adversary than the father. This may be attributed to the fact that the younger (weaker) brother appreciates that the disparity in age, size, power and experience is not so overwhelming as to make his chances for success appear entirely hopeless in the contest for the mother's favor when he vies with a male who is less powerful than his father. An older brother, on the other hand, is apt to be inclined to protect and regard a younger sister as a wife homologue, provided the incestuous maternal leaning is not over strong.

Analysis indicates that while the emotional outbursts and physical attacks by the more mature male sibling upon the junior of the

same sex are more direct and vigorous, because especially during the early childhood he is sure of his power, this jealousy is neither so deep nor intense as that of the newcomer in the family against his elders, although he must perforce repress his antagonism. Here the reason appears to lie in the circumstance that by the time the younger child arrives, more particularly if a few years intervene, the senior sibling's strivings have already become focused on his normal adversary in the Oedipus situation—an older male, usually his father. He can afford to neglect the younger rival, whereas the older constantly continues a barrier to his goal. In cases where the attachment of the older sibling to the parent of the opposite sex is excessive but unrequited or actually rejected, he may unconsciously displace his wrath arising from disappointment and frustration upon a junior sibling of his own sex. The hatred of the senior sibling for the younger seems generally intensified when the latter is of the same sex.

The following formulations, so far as generalization is ever valid, may be noted from the study of these five sets of siblings:

(1) The eclecticism of predominant individualistic attachments and reactions.

(2) The perpetual mutability of family environment.

(3) The adoption by and viability of the family's social outlook (home atmosphere) in all siblings no matter which turn the Oedipus reaction may have assumed in them as individuals.

Eclecticism of Individual Reaction.—This term is used to convey the idea that the neurotic attachments and reactions of each sibling are intrinsically succinct, discrete and independent. While complementary feelings of tender sympathy between siblings do exist—although in none of my patients was this the case—from analyses of familial emotional interaction, it seems most likely that in such cases sibling love develops secondarily and independently in each child as a result of a happy dissolution and resolution of the Oedipus components.*

The specificness, selectivity and individuality of the rivalries and overdetermined attachments of siblings were especially striking in families containing more than two children. Familial bonds and

* Sigmund Freud—"Some Psychological Consequences of the Anatomical Distinction between the Sexes." *The International Journal of Psychoanalysis*, Vol. VIII. Page 133.

events which actually involved to an equal extent the welfare of each of the siblings analyzed rarely affected them similarly, certainly not in degree. This was noticeable not only in their reactions toward the parents and toward each other but also in occurrences which vitally affected the communal family life. The trend of the sibling's attitude, here too, seemed unconsciously determined by his libidinous position in the Œdipus situation prevailing at the time. For instance, in the Italian brother set (Case set II), at a time when the boys had already reached manhood, the incapacity of the father through ill health necessitated a complete readjustment of the family finances. This emergency failed to interest the older brother, who, as a result of analysis, had been freed of his hatred toward the father. The younger sibling, however, who was still striving unconsciously to usurp the leadership of the family, began to make unusual sacrifices to aid his parents, not that his malevolence toward the father had been at all less than his brother's, but because he still sought to displace both older men with the mother and unconsciously sought to curry her praise through his devotion at this critical moment.

The selectivity of the dynamic force of an event involving two siblings may be illustrated by the following: The brother (in Case set I) repeatedly reverted to the persistent and determining force of the sexual excitation which he experienced at five when his sister, then aged fifteen, sprinkled talcum powder on his genitalia after bathing him—an event of which the sister, who was being analyzed synchronously, had only a faint and bland recollection. The boy had already at that early age displaced his incestuous yearnings upon the adolescent girl, whereas the latter, at the time engrossed in a vigorous, libidinally tinged antagonism to her mother, which marriage and subsequent analysis only partially altered, had no affection to spare for the negligible youngster.

Mutability of Environment.—The heredity of siblings in a very gross sense is the same. If the family has remained intact, the children have grown up together in a particular residence and general locality, their environment is also generally accepted as identical. Parents often seriously assert that they have treated each child with precisely the same love and parental attentions—that they have scrupulously avoided any partiality and have never relaxed their efforts to confer the same benefits upon each child. This is, of course,

possible only to a very minimal degree notwithstanding the most earnest efforts on the part of the parent, for, almost invariably, in life's perpetual circuit, the father will favor his female offspring and the mother the male. Aside from this the familial environment of siblings is and never can be the same. Even if the parents' efforts to maintain an impartial attitude toward any two children were possible, the interaction of the siblings upon each other creates an ever-changing and variable actual and emotional situation in the family. In the nursery days, the salient, the critical environment consists of that formed by the siblings themselves, whether the nursery be the kitchen floor of a three-room tenement or a special room elaborately equipped with the most approved modern kindergarten paraphernalia. The physical appurtenances are secondary. The very presence of the second sibling, irrespective of age or sex, creates an entirely different and determining environment and one finds it not infrequent that the one sibling so centers his interest upon the other that this relationship almost literally represents all the world to him.

The Viability of Household Atmosphere.—While it is true that no two siblings are ever raised in an environment which is stationary and that the vital, decisive, trenchant factors of the mutable milieu rest in the sibling relationship, the analysis of these five sets did demonstrate that certain of the more superficial social attributes of the family are viable and apt to be retained by all siblings. The irregularity and casualness of the household in Case set I, where the family life had been influenced much by the ideals of the theatre; the struggle with poverty and devotion to the church of the Irish Catholic brothers (Case set III); the frugality and parsimony in small things and incessant striving for social recognition by Christians which pervaded the home of the wealthy Jewish merchant (Case set IV); the prudery, conscientiousness and formality of the sanctimonious Episcopalian family (Case set V) permeated the outlook and colored the thought of each sibling to a very marked degree. Religious training, however, apparently lends only a particular covering to the package of household morality. All the dynamic forces of religion seemingly depended upon the emphasis with which the parents invested it. Thus two young women patients in successive analytic hours, each dominated by the stringent repression of their parents, replied in con-

nection with the question of attending public dances, "good Catholic girls don't do such things" and "nice Jewish girls don't do such things." However, as previously indicated, the political, economical and religious views which siblings do absorb from their home environment matter only remotely. They carry with them relatively little force in comparison to the handling of the strictly delimited personal intra-familial libidinal attachments and ideals, which, in turn, become the unconscious determining forces of the individual's destiny. The libidinous preparation for the same dramas occurs in precisely the same manner in a wine-drinking Italian mason's home, in the noisy, stifling tenement room, as in the staid, vine-covered, red brick New England house on an elm-lined street.

The following two cases, in brief outline, will serve to indicate the determining life forces in siblings who, in both families, were raised with a meticulous regard to impartiality by extremely intelligent and solicitous parents:

CASE SET IV.—Henry and William, the sons of a very prosperous Philadelphia merchant, had been reared in affluence in the stodgy, old family mansion by parents and servants who changed imperceptibly in the years between the births of the two boys, or during their childhood. The father, whose conspicuous success in the business world was attributable to his force of character, determination and authority, still lived at the ripe old age of eighty, and was actively directing his many enterprises when the older son, Henry, aged fifty-four, first consulted me. The patient complained of gastric disturbances and frequency of defecation with which he had been afflicted uninterruptedly for nearly forty years. The fear of an operation for appendicitis with which he had been threatened really drove him to confess to his physician that he believed all his numerous physical symptoms to be due to nervousness.

He had not married and had never indulged in intercourse because of a very involved masturbation complex. From earliest boyhood through college days, he had remained under the rigid control of his father and subsequently became a conscientious but intimidated assistant in his father's business undertakings. Suffice it to say that his masturbation conflict centered in the *Cedipus* situation and the sense of guilt and fear it engendered fostered in him an attitude of extreme humility toward the father which served to conceal his unconscious hatred. The analysis did not reveal unusual animosity toward the younger brother. Notwithstanding the long duration of the patient's complaints, he was completely cured of his gastric symptoms, made a transition to hetero-sexuality and married at the age of fifty-six.

Two years after he had been discharged, his brother William, aged forty-six, consulted me because of a relative impotence and compulsive worry about

his deceased father. In the interim, the father had died leaving his estate almost equally divided between the two sons who immediately engaged in an acrimonious battle for control and supremacy. William, although eight years Henry's junior, had always regarded himself as the abler of the two and had despised his older brother because he felt that the latter had submitted too docilely to the authority of the father. However, upon the father's death, William, too, found himself constantly in fear of the verdict which the father might have uttered in connection with any of his actions in social life or decisions in mercantile dealings had he been alive. In William, the *Œdipus* situation turned out to be more obvious and conscious than in Henry but was also connected with very much more direct threat of punishment on the part of the father. There seemed to be little doubt that castration fears were responsible for William's fiasco in his first marriage and in the impending dissolution of his second when he came for analysis. From the stories of both patients, the mother evidently unconsciously favored the younger child. However, for all of William's supposed superiority over Henry, during the former's analysis, it developed that whatever jealousy Henry may have experienced in regard to William because of the mother's favoritism, was more than counterbalanced by William's fear of Henry because of the relatively large genitalia which little William, aged six, noticed in his older brother, aged fourteen. It will be recalled that Henry had remained chaste until fifty-four but throughout his life, William had always fancied Henry as being extremely potent and promiscuous. In very early childhood, Henry had thus become closely identified in William's mind with the powerful, autocratic father. At the age of nineteen, William actually physically attacked Henry, then twenty-seven, and conquered him. The remarkable feature of the relationship between the two boys consisted in the fact that although William had convinced himself of his superiority, both physically and intellectually, over Henry he remained in a very profound fear of him unconsciously. So, with the death of the father, William's unconscious *Œdipus* rivalry, originally directed toward the father, found continuation in the person of Henry whom he soon began to patronize, criticize and despise.

In this case, the solution of William's difficulties resulted not only in the relief of his impotence but in an amicable adjustment of the fraternal relationship so that the father's interests are now being jointly administered in a congenial partnership.

CASE SET V.—John and Jane B. were analyzed simultaneously, although Jane entered analysis about a year and a half before her brother. Jane, forty-five years old, unmarried, had for over twenty years been suffering from torturing fear that she had murdered her grandmother. Subsequently, the idea came to her that she may have also murdered her mother. Jane is a woman of extreme culture and religiously attends the Emersonian Literary Club which meets every third Tuesday and the Chopin Musical Circle which plays bridge—but only for prizes—every other Thursday. John, aged thirty-

four, married, is an instructor in physiology in one of the smaller colleges. He suffered from a claustrophobia of over fifteen years duration, a relative impotence and had noticeably failed to achieve a success in his chosen field at all commensurate with his superior capabilities and early promise.

These siblings were the oldest and youngest of a family of three children. The intermediate sister, Sally, who had married at twenty-six, showed many symptoms which could be classed as neurotic but through a fortunate marriage has been enabled to muddle through life, although often on the verge of actual nervous disorder. The father of the family is a steady, extremely well-poised, clear thinking, somewhat phlegmatic Swede of the middle class. The mother, however, whom he chanced to meet and with whom he fell in love, came of a long line of fairly distinguished New England ancestry although, at the time of the marriage, her own family had become greatly impoverished through financial reverses. Certainly, from the time of marriage and probably before it, the mother suffered almost continuously from a neurosis which at times verged upon or rather merged into psychotic periods. An intensely religious woman, she raised her children in extreme conformity to Methodist doctrines and inasmuch as she herself suffered from a fear of sickness, allowed her children little of the physical freedom which the other children enjoyed in the middle-sized New England town where they resided. The household atmosphere impressed both siblings as being laden with apprehension, solicitude and precaution. During the very fleeting periods when the mother appeared to be relatively free of her mental sickness, she was considered a woman of much charm and kindness.

Jane B. unconsciously harbored good reasons for wishing to murder her grandmother who had instigated and approved of the switchings which her mother administered between the ages of four and ten and to which the child reacted with furious resentment and humiliation. Such punishment would, of course, not have affected the child so violently had she not begun to masturbate about the age of four and had she not been discovered by the mother who warned her that she would become insane if she continued the practice. Unable to curb her impulse, she lived in perpetual fear of the culmination of the dire threat and each new physiological development incidental to normal growth, such as a slightly bulging forehead, pubital hair, etc., sent her into a frenzy of fear as forerunners of the impending mental disaster.

At the age of eight, already under a heavy pall of guilt, while attending dancing school, she boldly asked a little boy to dance with her but her mother, who was present, rebuked her by telling her that the prerogative of invitation belonged to the male sex alone. Henceforth, there began an unconscious identification with boys and when her brother came into the family a few years later, when she was ten, she began to identify herself with him specifically. Under analysis, the intense interest which she exhibited in the brother and later in the man and which she considered to be love turned out to be nothing more nor less than a reliving of her own thwarted life in a masculine rôle unconsciously through her brother. This course had

been facilitated because she had failed utterly in the contest with her younger sister for attention and affection of her mother for which she so yearned. Having thus identified herself with masculinity, she became actively homosexual at the age of fifteen and a half with a girl companion and subsequently, after her friend had married, she became the active member of a homosexual relation with a woman lecturer old enough to be her mother and not dissimilar to her mother in many characteristics. When her brother married, she regarded his wife as having connived with a preconceived design to take the brother away from her—in analytic terms, separate her from her masculine ego ideal.

John, on the other hand, six years younger than Sally, very early began to form an attachment to her and identified himself with her. Females soon came to be synonymous with power and authority and because of the unwonted attention which the anxious mother devoted to excretory functions of her children centered itself in the relatively large size of the bowel movements of Sally. As may be expected, the anal interest persisted with extraordinary intensity up to time of analysis. All through life, John has suffered from his unconscious and partially conscious feeling of inferiority to women. Their superiority became a natural, intrinsic thing which under no circumstances could be questioned. However, instead of regarding Jane reciprocally with affection, he kept out of her way and considered her a sort of malicious step-mother—quarrelsome, interfering and irritating. After hearing the Grimm's fairy tale in the nursery, he pictured their mutual relationship as that of "Little Snow White (John) and the Wicked Step-mother" (Jane).

In the family drama, John unconsciously regarded himself as the third sister, alternately bullied and pampered by Sally, with whom he unconsciously attempted to compete in her own feminine psychological fields, such as being polite, acquiescent, courting popularity through pleasing mannerisms. When he reached the age of thirteen, his mother suffered from an exacerbation of the self-accusatory trend, which so colored her periodic depressions, and feared that she had caused her own mother's death. This intensely neurotic mother questioned her son for hours, day after day, so that she might convince herself that none of the boy's chemicals, with which he was experimenting in high school, had found their way into his grandmother's medicine.

In no way did he respond to the attentions of Jane who deluded herself with the idea that John must love her because she loved—identified herself with him. Because of the unconscious nature of his femininity, he had been unable to hold his own among men but, on the other hand, constantly fantasied himself in positions where he would be holding undue advantage over other people, such as being a good angel in *Fight of the Fallen Angels*. This alternated with the paradox of choosing situations and tasks where he would be at serious disadvantage and exposed to actual mental and physical torture (physical feminine rôle patterned after his mother). In marrying, he selected an older woman whom he knew to be chronically and seriously ill, *i. e.*, a crippled (inferior) woman, the only kind with whom he felt competent to deal. She resembled his mother in more than the merely physical attribute of

illness, as both were highly moral, in that they were profoundly kind women with a very broad sense of sympathy. However, after marriage, he became impatient with his wife for her illness and developed a deep feeling of pity and sympathy for himself. He more or less consciously became envious of the passive power which his wife's illness afforded her and he himself became a semi-invalid.

The rancor toward his sister, Sally, remained unabated and he repeatedly identified her with his wife. His relations to the latter oscillated between excessive indulgences and attitudes of refined cruelty.

In this case, both brother and sister showed the superficial characteristics of culture, courtesy and conscientiousness which they had acquired in the meticulous household but these comparatively had very little to do with the really guiding forces of their life—namely, the strongly unconscious and partially conscious sexual inversion in each individual. Although their reactions of rivalry and envy were well cloaked in subtle forms, the sibling relationship fundamentally determined the unhappy course of each of these lives.

TECHNICAL CONSIDERATIONS.

In the psycho-analysis of siblings, on the technical side, the rôle which the analyst assumes in the transference situation depends upon the predominating attachment of the sibling in his infantile life. Thus, in the case just quoted, to Jane, I became the God-like mother able to threaten and forgive: to John, the superior older sister whom he both despised and emulated: to the Philadelphia merchant's sons, both of whom were my senior by many years, I became "good papa Caleb," in contradistinction to "old Caleb," the name with which each had dubbed their strict father in their youths.

In each of the sets, the junior sibling entered analysis after the senior who was, in each case, largely responsible for inducing the younger one to seek treatment. Almost immediately after the younger started analysis, he sought to assume the rôle of the infantile child and attempted to inveigle the analyst into some expression of opinion as to his relative merit to the preceding sibling. So, too, when the siblings were analyzed synchronously, as in Case set I and Case set V, each ingeniously attempted to force the analyst into an expression of partiality or favor. The only safety for the analyst, in these instances, lies in conducting the cases as though

he knew of no relationship existing between them and as though he were entirely ignorant of the various feelings which the siblings harbored toward one another. It must be apparent that this impersonal position of the analyst can be maintained only at the price of unremitting vigilance. In addition, both siblings usually tried to bring the analytic situation into a counterpart of their idealized family situation so that they might regale themselves with their frustrated fantasies.

Very few generalizations can be drawn from these ten very protracted and minute studies of a single family life from the points of view of two of its members. Most pertinent is the observation that no matter how stationary the environment may appear externally and in the aggregate, it is never the same for any two siblings. The outwardly perceptible conditions and influences—both those considered most commendable or deleterious—may apparently not change as the years pass but their dynamic force is relatively negligible as compared to the emotional interaction of parents to children and sibling to sibling. In the very early years of child life, the sibling relationships may quite overshadow anything else in the environment, especially as at that period cultural ideals are rudimentary and external physical conditions, short of actual hunger, made little impression upon the infant. He cares little if his father be a bootlegger or a banker. The estimable position which each of these siblings' families occupied in the community indicates that much of the attention being devoted to physical home conditions as a cause for mental deviation is probably misplaced.

Nor is the environment furnished by parents the same for any two siblings no matter how cautiously each parent may attempt to carry through his rôle in strict and benevolent impartiality. Aside from the average difference in parental sibling attachment dependent upon the impulses operative in the Oedipus situation, deviation and disparity in feeling toward offspring depends very largely upon the degree to which each parent has found full psycho-sexual happiness in the marriage relationship. Parental libidinous disharmony often seeks compensation in an unequal and uneven attachment to a particular sibling, which in turn leads to an intensification of the customary sibling rivalries and affections for one another.

DISCUSSION

DR. GREGORY.—I am very much interested in this paper, and while the reader was speaking of the death wish, a case came to my mind. A patient came in with a tremendous inferiority complex; she came in with a suicide wish; she came crying. She was confused, and her language was incoherent. The first few hours she spent in telling me how much she loved her mother. One day she came to the office wringing her hands and crying and saying, "I've tried to love my mother; I've tried to love her, but I can't love her." Then she said, "Whenever I see a butcher knife it worries me for fear something will happen to the butcher knife. I have frequently gone off into another room and prayed nothing would happen."

After she raved on for the hour about the mother, I asked her if she saw the death wish. Immediately she brought up the death wish, and told me that a great deal of her life she had consciously had a death wish upon her mother. This case is not as deep, of course, as the one the Doctor mentioned. I might tell you something of the home life. This girl has a raving, shouting, fighting mother. The patient never had seen any love reaction between the father and mother. In fact, this mother had taken this girl unto herself and kept away from the other children, and also kept her away from the father. The patient never became acquainted with her own father.

This girl had made wonderful compensation. She was a chemist, a serologist, and was about halfway through professional school when she broke down. She had this tremendous death wish, and after frankly discussing for several hours the wish to kill the mother, she became very much better.

PRESIDENT MEYER.—Is this pertinent to the discussion of the psycho-analysis of the siblings?

DR. GREGORY.—Not entirely, but I was reminded of the death wish.

PRESIDENT MEYER.—If you wish to discuss the problem of the siblings, it would be in order under this paper.

DR. GREGORY.—Perhaps not entirely the sibling but the analysis of couples. I have under treatment at the present time a husband and wife, the husband being a physician. They both apparently have nearly the same mental mechanisms in that they each hate the opposite parent. I wish Dr. Oberndorf would discuss, if he will, the mechanism that develops such tremendous hate and death wishes upon the opposite parent, when at the same time they hold a deep love wish.

DR. C. P. OBERNDORF (New York, N. Y.) (Closing).—The point Dr. Gregory raised of the presence at the same time of the death wish and the love wish is usually due to the fact that the individual has been unable to free himself from the incestuous unconscious attachment which subsequently is transformed to hate. Because he cannot liberate himself from the incestuous attachment, he begins to wish that it did not exist, that is, would die, and converts the love into hatred and death wishes. I think that is the explanation of the mechanism.

THE BUSCAINO BLACK REACTION IN URINE.

ITS GENESIS AND DIAGNOSTIC VALUE WITH SPECIAL REFERENCE TO MENTAL DISEASES.

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The tendency to search for a physiopathologic basis of mental disorders is becoming more and more prevalent. The psychiatrist, without giving up psychologic investigation, is trying to apply in his realm the acquired knowledge of general pathology and to make use of laboratory findings just as the worker in any other branch of general medicine tries to do. This tendency is to be especially commended, because the psychiatrist encounters greater difficulties with regard to the interpretation of laboratory findings than does the internist. The chief reason for this is that the internist usually has to base his diagnosis on both somatic symptoms and laboratory tests, whereas the psychiatrist usually does not deal with any distinct somatic signs. On the other hand, it must be borne in mind that the average psychiatrist has less opportunity to become familiar with purely physiologic and pathologic problems than the physiopathologist. For that reason with all the more care and objectivity should those tests be examined which are proposed as more or less specific to definite mental states.

In this paper we intend to study the Buscaino urinary reaction, advanced as useful both for the diagnosis and the better understanding of the pathogenesis of certain mental diseases. This reaction, known as the "black reaction," is performed by the following very simple procedure:

To 3 c. c. of urine are added 1.5 c. c. of a five per cent solution of silver nitrate. This mixture containing a white deposit of silver chloride is shaken while it is being boiled for about a half minute. According to Buscaino, in the urine of normal individuals the white residue will undergo no change; in pathologic cases it turns yellow, cream, gray, lavender, purplish, brown and black. If it is boiled for more than a half minute, the black color remains stable.

When one mixes urine and silver nitrate in the proportion of 1:1, instead of in the proportion of 2:1, as indicated above, the different shades we have just described tend to approach the dark color.

According to Buscaino, the black reaction is due to certain abnormal chemical bodies, such as amines with NH_2 , and NH , radicals which appear in urine only in certain diseases; therefore the black color would never occur in the urine of normal individuals.

The chemical problem of the nature of the black deposit will be discussed later. Our immediate purpose is to review the literature concerned with the point most important for our aim, namely, the clinical value of the reaction in question.

Is the Buscaino reaction positive in pathologic conditions only, and if so, can it be considered as characteristic of certain definite pathologic states? Buscaino answers these questions affirmatively. In his hands the reaction was found positive especially in cases of amentia, schizophrenia, involutional melancholia, and in extrapyramidal syndromes, very often positive in typhoid fever and in pneumonia; in the latter diseases the positive reaction is caused by the fever. Furthermore, it is important to note that according to Buscaino's teaching there is a certain definite parallelism between the reaction and the evolution of the diseases named: it turns from positive to negative during the period of improvement and becomes positive when the patient gets worse.

These statements stimulated control-studies, first in Italy, and, as far as we could determine, some studies in Germany, France and Switzerland:

Tripi studied the reaction in about 170 cases; the latter include dementia præcox in various stages of evolution; acute and relapsed confusional psychoses; different psychiatric syndromes with incidental confusion. In dementia præcox the reaction was found very positive in active cases particularly in the early stages; in chronic cases it was found positive in the periods of excitement only; when the patients were quiet the reaction was less pronounced. In the light of these results the author assumes that in dementia præcox the organism is subject to a permanent intoxication. The intoxication would be more accentuated in periods of confusion and excitement, therefore the reaction is found to be very positive in these periods. In addition, the author felt justified

in assuming a close relationship between the positiveness of the reaction and the transitory state of incidental confusion, irrespective of the kind of psychosis in which the confusion occurred. Finally, he found a positive black reaction in intoxication with carbon monoxide. On the basis of this finding he draws the inference that carbon monoxide provokes grave metabolic disorders. The latter are assumed to be responsible for the anatomical alterations (resembling those of hemorrhagic encephalitis) found in the pallidum.

Scheiner, who studied a hundred cases of amentia and dementia præcox, supports Buscaino's findings.

Wahl, in France, while analyzing some of Buscaino's works, states that he obtained a black deposit in dementia præcox and in various mental diseases in which confusion was the salient point.

L. Cabernard found the reaction positive particularly in brain and mental disorders, namely in apoplexy, multiple sclerosis, arterio-sclerotic dementia, schizophrenia, but very seldom in manic-depressive psychosis.

Bostroem and Brechling affirmed their belief in the value of this reaction, finding it positive in symptomatic psychoses, in epilepsy, and in schizophrenia; in the latter disease especially in the acute period. The reaction was also positive in fever cases when the temperature rose above 39° C. These authors never found the reaction positive in normal individuals, nor in manic-depressive, general paresis, and senile dementia cases.

Santoné has found the reaction positive in cases of amentia accompanied by fever and much less frequently in dementia præcox. A positive reaction was also obtained in various febrile diseases of general medicine.

Ameghino and Ciampi noted a positive reaction in a low percentage (8.15 per cent) of cases in dementia præcox and much more frequently in cases of general medicine.

Marghret obtained a positive reaction in various febrile diseases, such as pneumonia, typhoid fever and, not infrequently, in neoplasma.

Ariola, on the basis of his own experience in acute and chronic encephalitis and in general medicine, draws the conclusion that the reaction in question is not specific of diseases of the nervous system.

Graziani's study includes 200 persons, 13 of whom are in a normal physical and mental state, the remainder comprise female psychiatric cases and a few male patients affected with general paresis and post-encephalitic sequela. The author presents the following findings:

The reaction was seldom positive in normal individuals and much more frequently positive in psychiatric patients (15 per cent). Among the latter, amentia holds the first rank (36 per cent). Involutional melancholia follows with 27 per cent; dementia præcox 15 per cent; manic-depressive cases 17 per cent; epidemic encephalitis 14 per cent. In some other forms of psychoses the reaction was found positive in a proportion not larger than in normal individuals. In view of these results Graziani, in contradiction to Buscaino's statement, concludes that the reaction in question is far from being characteristic of dementia præcox, amentia and post-encephalitic syndrome. In his experience, the positiveness of the black reaction seemed to be in some cases favored by the insufficiency of the liver function. In a greater number of cases it appeared to be more dependent upon somatic conditions (fever, under-nutrition, increased catabolism) than upon psychic disorders. Thus, this author denies that the black deposit in urine has any pathogenic significance in mental and nervous diseases.

According to D'Arbela, the Buscaino reaction is very frequently positive in amentia and dementia præcox, but when one uses a double amount of the reagent one can obtain a positive reaction in normal individuals as well.

Barbieri emphasizes that the black reaction may be obtained in a great percentage in various general physical diseases, and even in healthy persons, whereas it may fail in as great a percentage of dementia præcox and organic diseases of the central nervous system.

A. Mueller denies any value to the black reaction, since he found it both positive and negative in normal individuals as well as in mental and various other diseases.

This review shows that the diagnostic significance of the black reaction is still questionable. Likewise, there is no agreement concerning the origin and the chemical basis of the black deposit. Buscaino assumes that the above mentioned abnormal substances

responsible for the black deposit in urine come from the general circulation, through which they may poison the central nervous system. The toxic condition brought about by the same harmful agents may cause schizophrenic reactions or any other disturbances, according to the individual disposition.

This assumption is advocated by Tripi, Debeuz and Scheiner. Tripi, as we have noted above, finds a relationship between the intoxication of the organism and the positiveness of the reaction.

In Debeuz's experience, positive black reactions coincided with definite metabolic disorders. The latter expressed themselves in noticeable reduction of urea, total nitrogen, uric acid and in an increase of ammonia and compounds of amin group in the urine. These findings led him to question whether the liver alteration might be responsible for the positiveness of the reaction.

Scheiner believes that urine with the positive reaction contains free aromatic compounds which, in the presence of traces of liberated free ammonia with silver nitrate, give a black deposit.

The chemical nature of the black deposit, as assumed by Buscaino was disputed by D'Arbela, Barbieri and Marghret in Italy, by Bettzieche and Thomas in Germany, and by Mueller in Switzerland.

D'Arbela demonstrated that the contents of chlorides in urine had a great influence on the appearance or non-appearance of the black deposit.

The rôle of chlorides was equally stressed by Barbieri. He states that the black deposit does not consist of nitrogen substances, but only of reduced silver nitrate mixed in different proportions with silver chloride. He considers the reaction as being in relation to the amount of chlorides in urine and perhaps partly to the pigments of the latter.

Marghret holds uric acid responsible for the reaction; uric acid is assumed to be the substance which reduces silver nitrate.

The dependence of the black deposit upon the amount of both uric acid and sodium chloride in urine has been particularly emphasized by Bettzieche and Thomas.*

As far as their researches demonstrate, the black precipitation is not, as Buscaino states, made up of silver nitrate compounds.

* Meeting of the Medical Association in Leipzig, Feb. 5, 1927. *Muenchener medizinische Wochenschrift*, 1924, p. 285.

Bettzieche found that it contains, in addition to silver chloride in different concentrations, colloidal silver resulting from the reducing action of uric acid. According to this statement every urine may show a positive black reaction if the chlorides which mask the reaction are removed. The reaction was also positive in cases of normal individuals who followed a diet poor in chlorides. If at the same time they were given 1 gram of uric acid, the reaction became more intense; when 1.5 of uric acid was added to the normal chloride allowance the urine showed a dark brown color. The various shades which occur in the Buscaino reaction could be easily produced, either through adding sodium chloride to the urine or through removing uric acid by means of ammonium sulfate.

In short, the chemical findings of Bettzieche and Thomas show the black reaction to be dependent on the changeable relationship between uric acid and chloride in urine.

Mueller draws similar conclusions from his study of more than 600 reactions in the urine of normal and pathologic individuals and in exudates, transudates and edemas. He therefore feels justified in stressing the fact that the Buscaino reaction has nothing to do with physiopathologic conditions.

In view of these conflicting statements, and in order to evaluate the reaction, we subjected it to a new study.

Most of the cases of our study (119) are from the Phipps Psychiatric Clinic, 28 cases from Bay View Hospital, and 40 cases from Sinai Hospital.* In addition, the reaction was studied in the urine of 35 normal individuals, such as healthy members of our medical staff, and youths from a camp of boy scouts. In many cases the reaction was repeated several times in order to see whether it varies in different stages of disease in the same patient. In most cases the reaction was made by mixing 3 c. c. of urine with 1 c. c. of AgNO_3 . In several cases, in addition to this procedure another one was used by mixing urine and AgNO_3 in equal parts.

*I wish to thank Dr. Roxie Weber, head of the laboratory of the Sinai Hospital, and Dr. Goldsmith, in charge of the psychiatric department of the city hospital, who very kindly furnished us urines of patients in whom we were particularly interested.

Only a definite black deposit was considered as positive reaction. Our cases are distributed in three groups:

1. Cases of mental disorders without apparent organic basis, and those with definite organic disturbances of the cerebrospinal axis (Table I).

2. Acute and chronic affections in which various systems were involved and which belong to general medicine (Table II).

3. Normal individuals (Table III).

As Tables IV and V show, in many cases besides the Buscaino reaction, pH, uric acid, NaCl and other elements were determined in urine. This chemical study of the urine was made with the view of searching for the chemical basis of the black deposit.

THE BUSCAINO REACTION IN PSYCHOTIC CASES.

This group included 147 cases which are classified in Table I. In short, the results which we secured may be summarized as follows:

1. The group of thymergic or affective reaction types includes 28 cases; in nine cases the black deposit was evident—32.1 per cent.

2. In the set of merergic reaction types (psychoneuroses) in a total number of 20 cases the reaction was positive in five cases—25 per cent.

3. In 43 cases of parergic reaction types (schizophrenia and paranoid reaction types) a black deposit was obtained in eight cases—18.6 per cent. In this series, in 34 cases of schizophrenia the reaction was positive in five cases (14.7 per cent), whereas, in nine cases of paranoia the reaction was positive in three (33.3 per cent).

4. In the group of anergic disorders (organic reaction types) we obtained a black deposit in 18 cases out of 39—46.1 per cent.

5. In the small series (nine cases) of epilepsy the reaction was positive in one case only (11.1 per cent).

6. In the group of eight unclassified individuals the reaction was positive in two cases—(25 per cent).

In this series we see that the Buscaino reaction was most frequently positive in the group of anergic (organic) reaction types, thymergic (affective), and merergic (psychoneurotic)

TABLE I.

Date.	No.	Name.	Diagnosis.	Buscaino reaction.	
				2:1.	1:1.
A. THYMERGASTIC REACTION TYPES. [AFFECTIVE REACTION TYPES.]					
3-15-26	1	Mc.	Manic depressive.		Black.
8-14-26	2	B.	" "		Black.
8-14-26	3	S.	Depression.		Cream.
5-6-28	4	C.	"		Cream.
5-12-28	5	H.	"		Gray.
5-3-28	6	B.	"		Dark gray.
5-25-28	"	"	"		Brown.
5-16-28	"	"	"		Dark gray.
5-4-28	7	S.	"		Light brown.
6-9-28	"	A.	"		Dark brown.
5-2-28	8	"	Manic depressive.		Black.
5-5-28	"	"	" "		Dark brown.
5-6-28	"	"	" "		Black.
5-9-28	"	"	" "		White.
5-10-28	"	"	" "		Cream.
5-11-28	"	"	" "		Black.
5-12-28	"	"	" "		Black.
5-14-28	"	"	" "		White.
5-25-28	"	"	" "		Tan.
5-24-28	"	"	" "		Cream.
5-29-28	"	"	" "		Cream.
5-30-28	"	"	" "		Light tan.
6-1-28	"	"	" "		Brown.
6-3-28	"	"	" "		Dark brown.
6-4-28	"	"	" "		White.
6-5-28	"	"	" "		White.
6-6-28	"	"	" "		Cream.
6-7-28	"	"	" "		White.
6-8-28	"	"	" "		Dirty white.
6-9-28	"	"	" "		Dirty white.
6-10-28	"	"	" "		Cream.
6-11-28	"	"	" "		Cream.
5-23-28	"	"	" "		Cream.
5-19-28	"	"	" "		Cream.
5-18-28	"	"	" "		Light tan.
5-17-28	9	R.	Depression.		Cream.
5-29-28	10	W.	"		White.
6-1-28	11	S.	Agitated depression.		White.
6-5-28	12	S.	Manic reaction type.		Tan.
6-5-28	13	S.	Excitement.		Brown.
6-7-28	14	P.	Depression.		Black.
6-7-28	15	W.	"		Black.
5-16-28	16	C.	"		Dark brown.
5-16-28	17	H.	"		Gray.
5-17-28	18	S.	"		Dark gray.
6-11-28	19	S.	"		Dirty white.
6-14-28	20	F.	Reactive depression.		Cream.
6-22-28	21	F.	Depression.		Black.
6-25-28	22	S.	Agitated depression.		Black.
6-25-28	23	O.	Depression.		Brown.
6-28-28	24	H.	Recurrent depression.		Light brown.

TABLE I.—*Continued.*

Date.	No.	Name.	Diagnosis.	Buscaino reaction.	
				2:1.	1:1.
6-28-28	25	D.	Depression.	Black.	
7-5-28	26	G.	Hypomanic.	Cream.	
7-17-28	27	M.	Depression.	Cream.	
8-8-28	28	P.	Agitated depression.	Black.	
B. PSYCHONEUROSES (MERERGASTIC REACTION).					
2-17-28	29	B.	Anxiety attacks; obsessive fears.	Black.	
1-22-27	30	G.	Neurasthenia.	Black.	
10-7-26	31	H.	Hypochondriasis.	Dark brown.	
10-7-26	32	E.	"	Dark brown.	
5-5-28	33	L.	Hysterical features.	Cream.	
5-9-28	34	"	" "	Dirty white.	
5-10-28	"	"	" "	Black.	
5-11-28	"	"	" "	Black.	
5-12-28	"	"	" "	Very dark gray.	
5-5-28	35	N.	Anxiety neurosis.	Cream.	
6-13-28	36	J.	Hypochondriasis.	Cream.	
5-16-28	37	B.	Hysterical reaction.	Black.	
5-3-28	"	"	" "	Black.	
6-18-28	38	R.	Hysterical torticollis.	Brown.	
6-21-28	39	F.	Obsession.	Cream.	
6-21-28	40	T.	Anxiety neurosis.	Lavender.	
5-3-28	41	H.	Hysteria.	Tan.	
5-2-28	"	"	"	Black.	
5-16-28	42	W.	Hypochondriasis.	Lavender.	
8-7-28	43	R.	Anxiety neurosis.	Gray.	
8-7-28	44	E.	" "	Cream.	
8-7-28	45	M.	Nervousness with slight anxiety attacks.	Old rose.	
8-8-28	46	D.	Hysteria, depression.	Brown.	
8-28-26	47	C.	Reactive depression.	Purple.	
7-26-28	48	J.	Neuropathic constitution, depression; psoriasis, obesity.	White.	
C. PARERGASTIC REACTION TYPES (SCHIZOPHRENIC TYPES).					
7-28-26	49	R.	Schizophrenic reaction type with manic features.	Gray.	
8-14-26	50	N.	Depression with schizophrenic features in a feeble-minded person.	Cream.	
8-14-26	51	C.	Schizophrenic reaction type.	Cream.	
5-9-28	52	J.	Excitement with schizophrenic feature.	Cream.	
5-14-28	"	"	Excitement with schizophrenic feature.	Cream.	
6-5-28	53	K.	Schizophrenia.	Lavender.	
6-18-28	54	E.	"	Cream.	
6-18-28	55	J.	"	Black.	
6-18-28	56	C.	"	Very dark gray.	
7-5-28	57	A.	"	White.	
5-16-28	58	W.	"	White.	
5-3-28	59	G.	"	Cream.	

TABLE I.—Continued.

Date.	No.	Name.	Diagnosis.	Buscaino reaction.	
				2:1.	1:1.
5-29-28	59	G.	Schizophrenia.	Cream.	
6- 5-28	"	"	"	Brown.	
7-20-28	60	F.	"	White.	
7-20-28	61	M.	"	Brown.	
7-20-28	62	M.	"	White.	
7-25-28	63	B.	"	Gray.	
7-25-28	64	B.	"	Tan.	
7-25-28	65	S.	"	White.	
7-30-28	66	A.	"	Light gray.	
7-30-28	67	G.	"	Light gray.	
7-30-28	68	B.	"	Lavender.	
8- 1-28	69	B.	"	Brown.	Dark gray.
8- 1-28	70	J.	"	Cream.	Black.
8- 1-28	71	F.	"	Dark gray.	Dark gray.
8- 6-28	72	R.	"	Light brown.	Light brown.
8- 6-28	73	N.	"	Gray.	Black.
8- 6-28	74	H.	"	Cream.	Dark gray.
8- 8-28	75	C.	"	Dark brown.	Dark brown.
8- 8-28	76	J.	"	Old rose.	Brown.
8- 2-28	77	C.	Paranoid schizophrenia.	Gray.	Dark gray.
8- 2-28	78	K.	"	Brown.	Dark brown.
8- 2-28	79	"	"	Dirty white.	Very old rose.
8- 2-28	80	B.	"	Gray brown.	Black.
8- 7-28	81	L.	Schizophrenia.	Dark brown.	Dark brown.
8- 7-28	82	R.	"	Old rose.	Black.
PARANOID AND PARANOID REACTION TYPES.					
8- 7-28	83	K.	Paranoid symptoms.	Dark brown.	Dark gray.
8- 7-28	84	B.	Paranoia.	Light gray.	Black.
4-15-26	85	M.	Paranoid reactions.	Black.	
7-17-28	86	L.	Paranoid symptoms.	Old rose	
10- 2-26	87	M.	Depression with paranoid features.	Black.	
5-12-28	88	R.	Paranoid reaction with schizophrenic features.	Cream.	
6-28-28	89	P.	Paranoid reaction.	Dark gray.	
7-12-28	90	F.	Hallucinatory paranoid condition with schizophrenic features.	Light brown.	
5- 6-28	91	W.	Paranoia.	Chocolate.	
D. ORGANIC REACTION TYPES (ANERGASTIC DISORDERS.)					
5- 4-28	92	B.	Senile psychosis.	Black.	
6-18-26	93	D.	General paresis.	Black.	
6- 3-28	94	H.	Chronic alcoholism. Bromide intoxication.	Black.	
6- 4-28	95	K.	Aphasia; delirium; cerebral arterio-sclerosis.	Black.	
3-12-26	96	"	Depression; general arterio-sclerosis.	Black.	
2- 3-27	97	S.	Delirium with streptococcus viridans; septicemia.	Black.	
10- 2-26	98	D.	Cerebellar tumor.	Black.	
8-10-26	99	K.	Post-apoplectic delirium.	Black.	

TABLE I.—Continued.

Date.	No.	Name.	Diagnosis.	Buscaino reaction.	
				2:1.	1:1.
7-8-26	100	V.	Depression. Cerebrospinal lues; diabetes mellitus.	Black.	
8-3-26	101	P.	General paresis.	Light brown.	
5-3-28	102	H.	Cerebral arterio-sclerosis.	Tan.	
5-2-28	"	"	"	Black.	
5-4-28	103	O.	Pellagra psychosis.	Brown.	
5-16-28	"	"	"	Cream.	
5-2-28	104	H.	Chronic alcoholism.	Brown.	
5-4-28	"	"	"	Cream.	
5-5-28	"	"	"	White.	
5-6-28	"	"	"	Cream.	
5-9-28	"	"	"	Black.	
5-10-28	"	"	"	Lavender.	
5-11-28	"	"	"	Dirty white.	
5-12-28	"	"	"	White.	
5-14-28	"	"	"	White.	
5-16-28	"	"	"	White.	
5-9-28	105	"	Senile psychosis; arterio-sclerosis.	Black.	
5-17-28	"	"	"	Black.	
5-3-28	106	C.	Arterio-sclerotic condition (pre- senile).	Black.	
5-16-28	"	"	Arterio-sclerotic condition (pre- senile).	Black.	
5-14-28	107	F.	Pachymeningitis hemorrhagica. Cerebral arterio-sclerosis.	Dark brown.	
6-1-28	"	"	Pachymeningitis hemorrhagica. Cerebral arterio-sclerosis.	Black.	
5-22-28	"	"	Pachymeningitis hemorrhagica. Cerebral arterio-sclerosis.	Black.	
5-21-28	"	"	Pachymeningitis hemorrhagica. Cerebral arterio-sclerosis.	Black.	
5-18-28	108	I.	General paresis.	Gray.	
7-17-28	109	W.	Chronic alcoholism.	Cream.	
5-3-28	110	R.	Senile reactions.	Gray, lavender cream.	
5-17-28	111	H.	Senile psychosis.	Black.	
7-20-28	112	V.	"	Black.	
7-20-28	113	S.	"	Black.	
7-20-28	114	J.	"	Dirty white.	
7-20-28	115	W.	Idiocy.	Light gray.	
7-25-28	116	S.	General paresis.	Light gray.	
7-25-28	117	A.	"	Dirty white.	
7-20-28	118	N.	Idiocy.	Dark brown.	
7-30-28	119	S.	General paresis.	Lavender.	
7-31-28	120	R.	"	White.	
8-1-28	121	C.	"	Cream.	Gray.
8-1-28	122	W.	"	Brown.	Brown.
8-1-28	123	H.	"	Light brown.	Light brown.
8-6-28	124	J.	"	White.	Brown.
8-6-28	125	W.	"	White.	White.
8-8-28	126	M.	"	Dark brown.	Dark brown.
8-8-28	127	T.	Post encephalitis. Parkinson.	Black.	Black.
8-8-28	128	P.	Cerebral arterio-sclerosis.	Cream.	Dark gray.
8-8-28	129	W.	Senile psychosis.	Light brown.	
8-8-28	130	H.	"	Brown.	

TABLE I.—Continued.

				Buscaino reaction.	
Date.	No.	Name.	Diagnosis.	2:1.	1:1.
E. EPILEPSY.					
6-18-28	131	P.	Epilepsy.	Cream.	Dark gray. Dark brown.
7- 3-28	132	S.	"	White.	
7- 5-28	133	D.	"	Very dark brown.	
5- 3-28	134	T.	"	Black.	
5- 6-28	"	"	"	Dark brown.	
7-20-28	135	C.	"	Light brown.	
7-20-28	136	N.	"	Light brown.	
7-20-28	137	M.	"	Brown.	
7-20-28	138	F.	"	Dirty white.	
8- 2-28	139	B.	"	Dark brown.	
F. UNCLASSIFIED.					
8- 2-28	140	C.	Mental retardation; imaginative child; mitral insufficiency.	Cream.	Black.
6- 5-28	141	T.	Personality difficulty.	Dirty white.	
2-26-28	142	M.	Undiagnosed (inadequate history)	Dark gray.	
5- 2-28	143	L.	Unexplained delirium.	Gray.	
5- 4-28	"	"	"	Cream.	
5- 5-28	"	"	"	Red brown.	
5-19-28	144	T.	Narcolepsy.	Dirty white.	
8- 8-28	145	D.	Personality difficulty.	Black.	
8- 8-28	146	D.	Feeble-minded with depression.	White.	
8- 8-28	147	H.	Psychopathic personality. Paregoric addict.	Black.	

TABLE II.

ACUTE AND CHRONIC AFFECTIONS OF DIFFERENT SYSTEMS.

Date.	No.	Diagnosis.	Buscaino reaction.	
			2:1.	1:1.
7-9-28	1	Streptococci infection.	Very dark gray.	Black.
7-9-28	2	Heart disease.	" " "	Very dark gray.
7-9-28	3	" "	Brown.	"
7-9-28	4	Chronic tonsillitis.	"	Brown.
7-9-28	5	" "	Dark brown.	Dark brown.
7-9-28	6	Chronic heart disease.	Black.	Black.
7-9-28	7	Carcinoma, diabetes.	"	"
7-9-28	8	Phlebitis.	"	"
7-9-28	9	Hernia.	"	"
7-10-28	10	Chronic tonsillitis.	"	"
7-10-28	11	" "	Very dark brown.	"
7-10-28	12	Skin lesion of undetermined nature.	Light tan.	Light tan.
7-10-28	13	Pulmonary tuberculosis.	Black.	Black.
7-10-28	14	Chronic cystitis.	"	"
7-11-28	15	Chorea.	Tan.	Tan.
7-11-28	16	Bronchitis.	Dark gray.	Very dark gray.
7-11-28	17	Unresolved pneumonia.	Tan.	Tan.
7-11-28	18	Chorea.	"	"
7-11-28	19	Bacterial endocarditis.	Dark brown.	Dark brown.
7-11-28	20	Phlebitis and pleural effusion.	Black.	Black.
7-12-28	21	Acute rheumatic fever.	Dark brown.	"
7-12-28	22	Congenital lues, bronchial asthma.	Dirty white.	Brown.
7-12-28	23	Chronic tonsillitis.	Brown.	Dark brown.
7-12-28	24	Osteomyelitis.	Dark brown.	Very dark brown.
7-13-28	25	Pleural effusion.	Cream.	" " "
7-13-28	26	Chronic tonsillitis. Infectious arthritis.	Black.	Black.
7-13-28	27	Infectious arthritis.	Cream.	Brown.
7-13-28	28	Chronic appendicitis.	Brown.	Dark brown.
7-14-28	29	Post operative appendicitis. Diabetes.	Black.	Black.
7-14-28	30	Chronic heart disease.	Lavender.	Dark gray.
7-14-28	31	Chronic myocarditis. Diabetes. Emphysema.	Dark brown.	Dark brown.
7-14-28	32	Chronic bladder disease.	Black.	Black.
7-17-28	33	Rheumatic fever.	"	"
7-17-28	34	Chronic tonsillitis.	Dirty white.	Light brown.
7-17-28	35	" "	Light brown.	" "
7-24-28	36	Pulmonary neoplasm.	Brown.	Brown.
7-24-28	37	Subacute bacterial endocarditis.	White.	Old rose.
7-24-28	38	Acute appendicitis.	Yellow.	Black.
7-24-28	39	Emphysema.	Lavender.	Dark gray.
7-24-28	40	Chronic tonsillitis.	Chocolate.	Black.

TABLE III.
URINES OF NORMAL INDIVIDUALS.

Date.	No.	Name.	Buscaino reaction.	
			2:1.	1:1.
5-18-28	1	R.	Cream.	
5-18-28	2	K.	"	
5-18-28	3	C.	Lavender.	
5-21-28	4	J.	Cream.	
5-21-28	5	W.	Dark lavender.	
5-21-28	6	A.	Cream.	
5-22-28	7	L.	White.	
5-22-28	8	E. B.	Dark cream.	
5-22-28	9	P.	Light brown.	
5-22-28	10	D.	Purple.	
5-22-28	11	F.	White.	
5-22-28	12	V. S.	"	
5-22-28	13	C.	Brown.	
5-22-28	14	J. L. J.	"	
5-22-28	15	S.	Dark brown.	
5-22-28	16	B.	Cream.	
5-23-28	17	D.	White.	Rose color.
5-23-28	18	J.	"	Dark gray.
5-23-28	19	J.	Cream.	Black.
5-23-28	20	F.	"	Brown.
5-23-28	21	S.	"	Lavender.
5-23-28	22	E.	"	Dark brown.
5-23-28	23	B.	Light brown.	" "
5-24-28	24	M.	Cream.	Gray.
5-24-28	25	D.	White.	Black.
5-24-28	26	M.	Black.	Dark gray.
5-24-28	27	W.	White.	Dark brown.
5-24-28	28	W.	"	Dark gray.
5-24-28	29	J.	"	Old rose.
5-25-28	30	K.	"	" "
5-25-28	31	N.	Dark gray.	Dark gray.
5-25-28	32	B.	Brown.	Light brown.
5-25-28	33	W.	Old rose.	Dark gray.
5-25-28	34	W.	White.	" "
5-25-28	35	W.	Dirty white.	" "

TABLE IV.

Date.	Name.	No.	Buscaino, 2:1.	pH.	Ratio, uric acid, sodium chloride.	Uric acid, mg. per 100 cc.	Sodium chloride, mg. per 100 cc.
5-16-28	E.	1	Dark brown.	6.26			
"	H.	2	Gray.	5.78			
"	O.	3	Cream.	5.60			
"	H.	4	Gray.	5.94			
"	B.	5	Dark brown	6.50			
"	W.	6	White.	5.96			
5-17-28	R.	7	Dark gray.	5.27			
"	S.	8	" "	6.30			
5-18-28	"	9	Gray.	5.11			
5-19-28	T.	10	Dirty white.	5.62			
"	R.	11	Cream.	"			
6-11-28	S.	12	Dirty white.	5.42			
6-13-28	E.	13	Cream.	5.90			
"	J.	14	"	5.17			
5-16-28	B.	15	Black.	5.35			
6-14-28	F.	16	Cream.	5.32			
6-18-28	H.	17	Light gray	5.76			
"	E.	18	Cream.	6.80			
"	R.	19	Brown.	7.29			
"	Z.	20	Black.	5.55			
"	P.	21	Cream.	6.81			
6-21-28	F.	22	"	5.12			
"	T.	23	Lavender.	4.94			
6-22-28	F.	24	Black.	5.76			
6-25-28	S.	25	"	5.51			
"	O.	26	Brown.	6.10			
"	S.	27	White.	5.30			
"	B.	28	Red.	"			
6-28-28	D.	29	Very dark brown.	5.74			
"	G.	30	Cream.	6.46			
"	A.	31	White.	5.53			
"	L.	32	Tan.	6.67			
7-3-28	F.	33	Light brown.	5.16			
7-5-28	M.	34	Brown	6.99			
"	"	35	Cream	5.36			
"	W.	36	Brown	5.47			
"	M.	37	Cream.	5.36			
"	W.	38	"	5.32			
7-12-28	L.	39	Old rose.	5.24			
"	B.	40	White.	5.34			
"	M.	41	Old rose.	5.76			
7-26-28	J.	42	Dirty white.	5.23			
"	P.	43	Black.	5.50			
6-25-28	S.	44	Gray.	5.90			
"	"	45	Dark brown.	5.74			
6-28-28	B.	46	Brown.	5.46			
"	H.	47	Light brown.	5.60			
"	D.	48	Black.	6.04			
"	G.	49	"	"			
"	P.	50	Dark gray.	5.22			
6-1-28	D.	51	Brown.	5.62	0.046	58.4	1280
6-3-28	"	52	Dark brown.	5.40	0.096	64.0	670
6-4-28	"	53	White.	5.75	0.029	57.6	1970
6-5-28	"	54	"	6.99	0.019	31.2	1660
6-6-28	"	55	Cream.	5.31	0.026	46.3	1760
6-7-28	"	56	White.	4.98	0.023	45.8	1960

TABLE IV.—Continued.

Date.	Name.	No.	Buscaino, 2:1.	pH.	Ratio, uric acid, sodium chloride.	Uric acid, mg. per 100 cc.	Sodium chloride, mg. per 100 cc.
6-8-28	D.	57	Dirty white.	4.90	0.026	45.2	1710
6-9-28	"	58	"	5.12	0.033	53.7	1620
6-10-28	"	59	Cream.	5.46			
6-11-28	"	60	"	5.01			
5-23-28	"	61	"	5.37			
5-10-28	"	62	"	5.24			
5-18-28	"	63	Light tan.	6.82			
5-3-28	T.	64	Black.		0.069	11.1	160
5-16-28	"	65	Dark brown.	7.03			
5-9-28	H.	66	Lavender.		0.081	68.5	850
5-16-28	"	67	Very dark gray.	5.62			
5-17-28	R.	68	Cream.	5.20	0.045	61.6	1380
5-20-28	W.	69	White.	5.50	0.056	40.1	880
6-1-28	S.	70	"	5.01	0.035	38.7	1000
"	H.	71	Brown.	6.56	0.055	30.0	710
5-3-28	G.	72	Black.		0.117	32.7	280
5-16-28	"	73	"	5.86			
6-5-28	S.	74	Tan.	5.80	0.099	48.5	480
"	"	75	Brown.	7.73	0.048	30.0	820
"	T.	76	Lavender.	5.31	0.071	58.4	"
"	"	77	Dirty white.	6.13	0.045	60.6	1340
6-7-28	P.	78	Black.	7.46	0.096	44.0	460
"	W.	79	"	5.62	0.093	45.8	490
5-14-28	F.	80	Dark brown.		0.078	10.4	250
6-1-28	"	81	Black.	5.34	0.147	66.1	450
5-22-28	"	82	"	4.17			
5-21-28	"	83	"	5.06			
5-3-28	R.	84	Cream.		0.050	43.7	860
5-16-28	"	85	Gray.	6.78			
5-9-28	H.	86	Black.		0.508	66.6	130
5-17-28	"	87	"	6.24			
5-3-28	G.	88	Cream.		0.046	54.4	1180
5-20-28	"	89	"	6.16	0.049	55.2	1120
6-25-28	"	90	Brown.	6.98			
5-18-28	R.	91	Cream.	6.24	0.036	61.6	1680
"	K.	92	"	5.35	0.055	58.0	1050
5-21-28	T. C.	93	Lavender.	5.46	0.058	45.0	770
"	R. J.	94	Cream.	6.85	0.032	61.1	1900
"	W.	95	Lavender.	7.25	0.054	72.8	1340
"	A.	96	Cream.	5.60	0.052	60.2	1140
5-22-28	L.	97	White.	5.24	0.033	58.0	1770
"	C. B.	98	Dark cream.	4.94	0.023	28.6	1230
"	P.	99	Light brown.	6.22	0.027	12.1	450
"	D.	100	Purple.	7.42	0.074	59.4	800
"	F.	101	White.	6.39	0.027	47.1	1710
"	J. S.	102	"	7.46	0.026	24.6	950
"	C.	103	Brown.	5.17	0.032	6.2	190
"	J. L. J.	104	Dark brown.	5.30	0.056	29.8	530
"	S.	105	"	6.56	0.083	30.7	380
"	B.	106	Cream.		0.025	37.8	1520
8-20-28	T.	107	Cream.	5.50	0.061	64.0	1040
"	P.	108	Black.		0.088	44.0	500
"	H.	109	Very dark brown.		0.072	42.0	150
"	S.	110	Black.		0.127	35.5	280
"	H.	111	"		0.356	77.0	220
"	L.	112	"		0.120	60.1	500
"	W.	113	"		0.195	37.0	190

TABLE IV.—Continued.

Date.	Name.	No.	Buscaino, 2:1.	pH.	Ratio, uric acid, sodium chloride.	Uric acid, mg. per 100 cc.	Sodium chloride, mg. per 100 cc.
8-21-28	D.	114	Purple.		0.062	49.7	800
8-22-28	S.	115	Cream.		0.050	49.4	900
"	V.	116	Black.		0.193	65.6	340
"	W.	117	"		0.130	61.1	470
5-5-28	L.	118	Cream.		0.067	57.2	860
5-9-28	"	119	Dirty white.		0.099	71.5	720
5-10-28	"	120	Black.		0.106	48.8	460
5-11-28	"	121	"		0.114	"	430
5-12-28	"	122	Very dark gray.		0.096	44.9	470
5-4-28	"	123	Cream.		0.024	19.1	800
5-5-28	"	124	Reddish brown.		0.025	12.5	495
5-3-28	H.	125	Tan.		0.083	36.4	440
"	L.	126	Cream.		0.068	43.2	635
"	B.	127	Black.		0.112	35.9	320
5-4-28	O.	128	Brown.		0.054	32.3	600
5-5-28	N.	129	Cream.		0.053	43.3	820
5-6-28	C.	130	"		0.038	40.9	1070
"	W.	131	Chocolate.		0.054	30.3	560
"	"	132	Lavender.		0.037	30.5	830
5-12-28	H.	133	Gray.		0.064	47.1	740
5-14-28	D.	134	Brown.		0.075	51.6	690
5-9-28	J.	135	Cream.		0.118	109.6	930
5-11-28	"	136	"		0.074	64.5	870
5-3-28	B.	137	Dark gray.		0.063	32.7	520
5-25-28	"	138	Brown.		0.074	53.4	720
5-11-28	"	139	Dark gray.	4.87			
5-4-28	S.	140	Light brown.		0.027	12.0	440
6-9-28	"	141	Dark brown.		0.114	36.4	320
5-4-28	H.	142	Cream.		0.022	23.8	1080
5-5-28	"	143	White.		"	18.0	820
5-6-28	"	144	Cream.		0.025	24.6	970
5-9-28	"	145	Black.		0.036	30.2	1070
5-10-28	"	146	Lavender.		0.028	23.3	830
5-11-28	"	147	Dirty white.		0.030	31.4	1060
5-12-28	"	148	White.		0.042	44.2	"
5-14-28	"	149	"		0.054	61.6	1150
5-5-28	D.	150	Dark brown.		0.078	47.4	600
5-6-28	"	151	Black.		0.167	55.3	330
5-9-28	"	152	White.		0.083	56.7	680
5-10-28	"	153	Cream.		0.034	36.9	1080
5-11-28	"	154	Black.		0.107	51.2	480
5-12-28	"	155	"		0.090	44.9	500
5-14-28	"	156	White.		0.032	38.8	1220
5-25-28	"	157	Tan.	6.10	0.027	49.4	1790
5-24-28	"	158	Cream.	7.06	0.051	56.0	1390
5-29-28	"	159	"	5.50	0.067	73.5	1090
5-30-28	"	160	Light tan.	5.75	0.044	71.4	1620

TABLE V

Date.	Name.	No.	Buscaino, 2:1.	Nitrogen, mg. per 100 cc.	Ammonia, nitrogen, mg. per 100 cc.	Amino acids, nitrogen, mg. per 100 cc.	Sulphur, mg. per 100 cc.
6-25-28	G.	1	Brown.		30.3	16.1	48.8
6-14-28	F.	2	Cream.	802			
6-18-28	H.	3	Light gray.	1120	38.2		65.2
"	E.	4	Cream.	680	34.5		22.9
"	R.	5	Brown.	600	29.8		42.7
"	Z.	6	Black.	1600	98.0		151.0
"	P.	7	Cream.	930	52.1		56.0
6-21-28	F.	8	"	828			247.0
"	T.	9	Lavender.	850			41.0
6-22-28	F.	10	Black.			15.0	76.0
6-25-28	S.	11	"		20.0	18.1	74.5
"	O.	12	Brown.		47.0	8.5	30.6
6-14-28	P.	13	Black.				34.6
6-25-28	S.	14	Gray.	535	23.8	5.1	19.4
"	"	15	Dark brown.		16.5	2.7	18.5
6-28-28	B.	16	Brown.	242	24.8	9.4	32.8
"	H.	17	Light brown.	540	19.0	5.8	28.7
"	D.	18	Black.		30.0		61.4
6-28-28	G.	19	"	1820	63.0	17.9	113.4
"	P.	20	Dark gray.	242	24.8	9.4	32.8
7-3-28	S.	21	White.	940	91.0	13.3	
"	D.	22	Red.	320	36.7	13.0	

reaction types. When we compare our findings with those of the authors above quoted, we find ourselves in agreement with Buscaino, Cabernard, Bostroem and Brechling, Graziani, Scheiner, Santoné, Tripi and others, as far as the occurrence of a positive reaction in parergastic reaction types (schizophrenia), in certain psychoses on an organic basis and in epilepsy. Our observations are in striking opposition to those of Bostroem and Brechling, concerning the manic-depressive, general paresis and senile dementia cases, in which they never found the reaction positive. L. Cabernard very seldom obtained a positive reaction in manic-depressive cases.

With regard to Buscaino's assertion of the existence of a parallelism between his reaction and the evolution of disease, the cases Nos. 8, 34, 104, 105, 106, 107 are instructive because the reaction in those cases was repeated at different intervals. In cases Nos. 105 and 106, the steady black reaction coincided with a stable mental and physical state. On the contrary, in the cases Nos. 8 and 34, in spite of the fact that there were no changes either in the mental or in

the physical state, there were definite changes in the deposit from black to white and vice versa. Finally, in the case No. 107, although there were variations in the emotional condition of the patient, the fundamental trouble remained unchanged, and the black reaction remained for the most part positive.

THE BUSCAINO REACTION IN ACUTE AND CHRONIC AFFECTIONS OF DIFFERENT SYSTEMS.

The 40 cases gathered in Table II, include diseases of very different nature. The examination of the Table does not show a prevalence of the positive reaction in diseases of any one definite system. There is also no evidence of any relation between the nature and origin of disease on the one hand, and the positiveness of the black reaction on the other. Among the total number of our 40 cases the black deposit was observed in 17 cases—43.5 per cent. The comparison of these results with those of the first group, shows that the Buscaino reaction may be positive as frequently in diseases belonging to general medicine as in mental and nervous diseases.

THE BUSCAINO REACTION IN NORMAL INDIVIDUALS.

As Table III indicates in a total number of 35 cases, the black reaction was positive in two cases only (5.7 per cent) when urine and silver nitrate were mixed in equal parts. In one case (26) the reaction was positive by mixing $1\frac{1}{2}$ c. c. of urine with 3 c. c. of silver nitrate and negative when taken in equal proportions. The last finding is paradoxical, as usually when the reaction is carried out with equal parts of urine and reagent, the shade of the deposit has a definite tendency to turn toward black.

The three positive reactions in the total number of 35 normal individuals give a percentage of 8.6.

Contrary to the statements of Buscaino and Bostroem and Brechling, the findings of Graziani, d'Arbela, Mueller, as well as our own, show that the Buscaino reaction may be positive in apparently healthy individuals. In our experience, however, it is much less frequently positive in normal individuals than in pathologic cases.

From the point of view of pathological physiology it is important to note that the reaction in question, whatever its diagnostic value may be, is very frequently positive in cases with evident disturbances of physiologic functions. This statement holds true not only for cases presenting definite symptoms of organic disorders, but also for those in which no organic basis could be admitted, as it was in our groups of thymergastic and merergastic reaction types. It is obvious that as the reaction is not specific for any particular group of diseases its clinical value is lessened to a great extent. Unfortunately, even this reduced value cannot stand any critical examination, for, as we shall show in the following lines, the positiveness of the reaction seems to be essentially dependent upon factors which are only epiphenomena of pathologic conditions.

Concerning the much discussed question of the origin and the chemical basis of the black deposit, Table IV presents a collection of our results of urinary chemistry made in 157 different specimens of urines with positive and negative reactions.

The concentration of H-OH ions may vary in wide limits without influencing the reaction. Thus in cases in which the deposit is light in color the pH varies between 4.87 and 7.90; in cases with black deposit it varies between 4.17 and 7.46. Moreover, it is to be noted that the same pH may accompany either a positive or a negative reaction, as in the cases Nos. 53, 79, 82, 88, 92, 103, 107, 147 and 150.

The amounts of total nitrogen, $\frac{\text{ammonia nitrogen}}{\text{amino acid nitrogen}}$ show in our cases with positive reactions, a greater amount of both total nitrogen and ammonia nitrogen than in the cases with negative reactions; the number of tests, however, is too small to permit definite conclusions. On the contrary, in a great number of cases the quantitative analysis of uric acid and sodium chloride, and the calculation of the relations between these elements were made with the following results:

In 76 urines (60 specimens from various patients and 16 from normal individuals) with negative black reaction, the ratio $\frac{\text{uric acid}}{\text{sodium chloride}}$ varied from 0.019 to 0.118, and the average was 0.052.

In 20 urines with a positive black reaction the ratio

$$\frac{\text{uric acid}}{\text{sodium chloride}}$$

varied from 0.036 to 0.508, and the average was 0.149.

These data show that the positive black reaction is accompanied by a higher ratio between uric acid and sodium chloride than the negative reaction. Our findings are thus in complete agreement with those of Bettzieche and Thomas.

Furthermore, the examination of the concentrations of uric acid, both in urines with positive and negative reactions, shows that in the positive cases uric acid varies from 11.1 to 77 mgr. per cent, and in the negative ones from 12 to 109.6 mgr. per cent. The concentration of sodium chloride is between 130 and 1070.5 mgr. per cent in the positive cases and between 150 and 1790 mgr. per cent in the negative ones. Thus the high correlation between uric acid and sodium chloride in the positive cases is essentially due to a relatively low concentration of sodium chloride. The fact that both uric acid and sodium chloride are found in lower amounts in the positive cases than in the negative ones, in our opinion is due to the fact that sick persons, who in our experience presented the highest percentage of positive reactions, usually have a diet poorer both in salt and proteins than normal individuals. As a matter of fact, whatever value this interpretation may have, a positive Buscaino reaction shows itself to be dependent not upon diseases themselves, but only on epiphenomena (changes in the relationship between uric acid and sodium chloride) which usually occur for the reason above mentioned in abnormal states, but may take place equally in normal conditions.

SUMMARY.

1. Buscaino's reaction was studied chiefly in psychoses and for purposes of control in diseases of other systems and in normal individuals.

2. In the group of nervous and mental diseases of the total number of 147 patients, 43, or 29.25 per cent, showed a positive reaction. The latter was most frequently positive in anergastic disorders (organic reaction types) namely, in 47.5 per cent of our

40 cases. In the groups of thymergastic (manic-depressive), mer-
ergastic (psychoneuroses), parergastic reaction types (schizo-
phrenia, paranoia), epilepsy and some unclassified cases, it was
positive in a percentage between 11.1 and 33.3 per cent.

3. In the control cases we obtained a positive reaction in 42.5 per
cent of our 40 cases of acute and chronic affections of different
systems and in 8.6 per cent in the group of 35 normal individuals.

4. In the specimens of urines with positive black reaction the
ratio between uric and sodium chloride was higher than in the
urines with negative reaction.

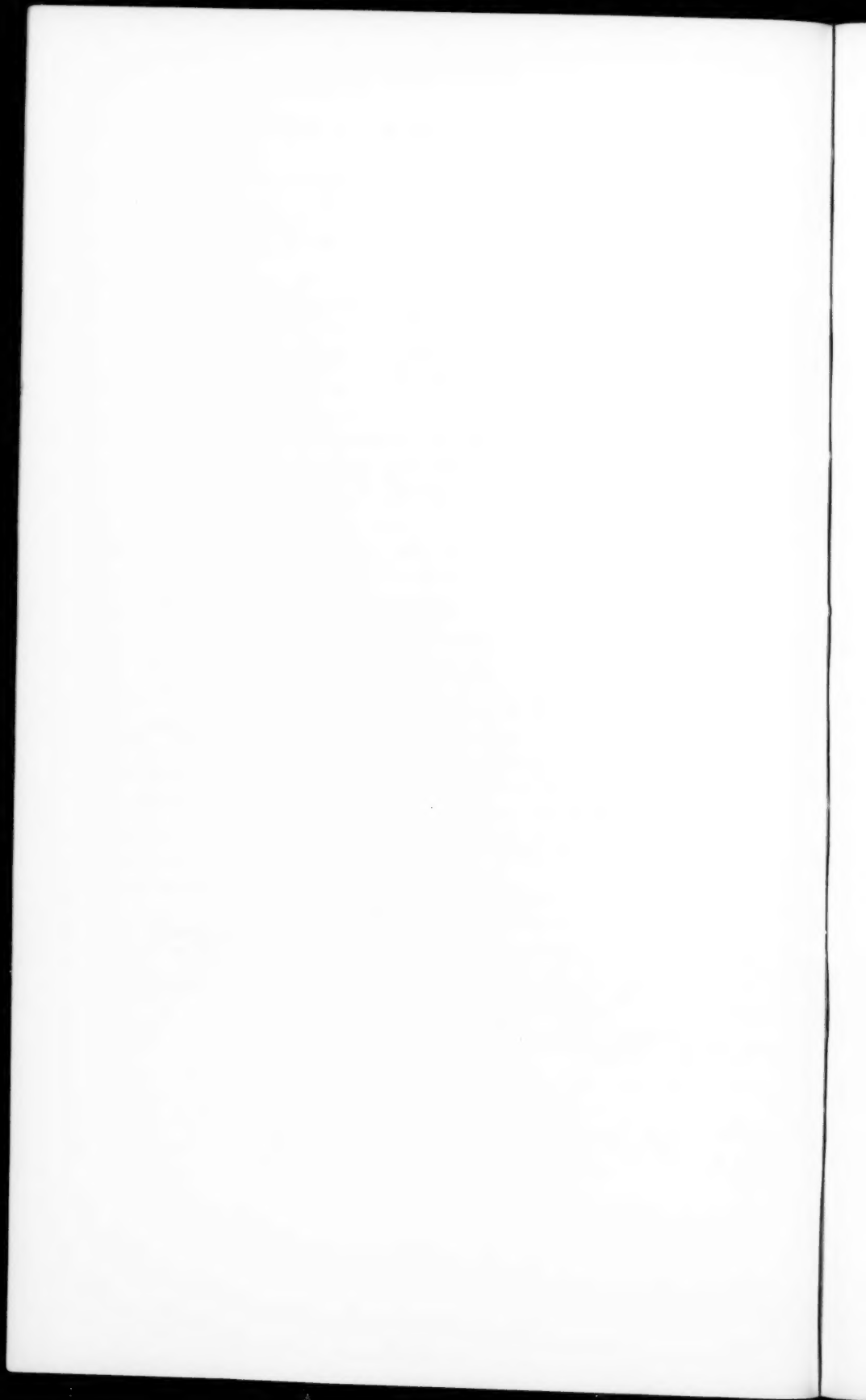
5. Both uric acid and sodium chloride were found in lower
amounts in the positive cases than in the negative ones; and the
high ratio between these two chemical compounds in the urines with
black deposit, as it was noted, is essentially due to a low concentra-
tion of sodium chloride.

6. In the light of the fact that, on the one hand the black reac-
tion was found positive in varying pathologic conditions and even
in a few normal individuals, and on the other hand that the positive
reaction was accompanied in most cases by a higher ratio between
uric acid and sodium chloride than the negative reaction, we are
justified in concluding that the Buscaino reaction does not depend
upon the diseases themselves, but only upon epiphenomena (such
as changes in the relation between uric acid and sodium chloride).
These changes are very likely, at least partly if not altogether, due
to the diet of hospital patients which is usually reduced in proteins
and salt. Our findings are thus completely unfavorable as to the
value of the reaction.

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MENTAL HYGIENE IN A UNIVERSITY.*

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In June, 1928, it no longer seems necessary to point out in detail the need for the advantages of mental hygiene in a university. Dean Thompson of Vassar College has said, "It is no longer considered progressive to have an expert in mental hygiene on the staff, it is reactionary not to do these things." If we consider the definition of education given by the Committee on Education appointed by the Commonwealth Fund which states that "education broadly conceived is especially concerned with developing habits of thought, emotional responses and behavior that are basic to the successful operation of a coöperative living," we see immediately the close analogy between education and mental hygiene. However, if a college employs one or more psychiatrists for work with the student body, it does not mean that that particular college is a Mecca for psychotics, psychopathic personalities, or other twisted emotional lives. It merely means that the college has recognized the need and the obligation of attending to the emotional side of the student's life as well as to his physical and intellectual side. It is safe to state that mental hygiene problems are no more common in college than they are in other walks of life.

The organization and place of a mental hygiene department in a university or college depends entirely upon the type of the particular school concerned. The size and location of the college, and whether it is co-educational or limited to one sex, would make considerable difference in the type of organization. The office location and the affiliation of such a department are of considerable importance. Some might feel that it should be associated with the psychology department, while others might feel that it should be a part of the medical school. It seems, though, that the closest affiliation should be with the department of health. This does not mean that there should not be a very definite contact with other departments concerned in general with human behavior. At Yale

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the organization consists of four psychiatrists, a psychiatric social service worker and the necessary secretarial help. Physical examinations are taken care of by the Department of Health and psychological work is done by various psychologists. Our particular department is located in the medical school which has some advantages but also many disadvantages. It is much easier for a student to drop into the Department of Health which is on the main campus than it is for him to come several blocks to a medical school with which he associates the idea of something distinctly abnormal.

The functions of a mental hygiene department in a large university are quite varied. Of course the most important work is that concerned with the individual student problem, but this phase will be left for later discussion. With the idea of starting mental hygiene as near home as possible, the department has the assignment of teaching psychiatry and mental hygiene in the medical school. According to the newer methods of teaching in the Yale Medical School, we are getting more and more away from the didactic method of teaching and in psychiatry most of the work is directed toward clinical demonstration and actual work by the students in cases of neuroses and child guidance problems. During the course emphasis is placed on the importance of the medical student understanding his own particular problems and of seeing the psychiatric aspects in the ordinary medical and surgical cases. In addition to the teaching in the medical school there is a regular course in mental hygiene for the undergraduates in the college. Next year it is planned to give an advanced course in mental hygiene for those who are qualified by previous work. Of course instruction of the faculty in mental hygiene is almost as necessary as instruction of the students, but for obvious reasons this cannot be carried on in a formal class and must be done in more subtle ways, but it is being accomplished through informal conferences. Research work is another function of such a department and mental hygiene in the colleges has opened up new fields for research. At present the question of student failures is an important research project.

Let us now turn to a consideration of the individual student case. The most common question asked in regard to this work is, How do you get in touch with the student, or how does the stu-

dent come to the department? The majority of the cases come through the Department of Health and this seems to be the most ideal avenue of introduction. Many cases come on the recommendation of the dean or some of the instructors, while others are referred by fellow students who have had some dealing with the department. An effort was made to reach the student body and acquaint them with the department by holding smokers or conferences with small groups of freshmen. These are strictly informal gatherings and students are urged to ask many questions pertaining to mental hygiene. Next year it is proposed to have a ten-minute conference with each freshman individually as a part of his general physical examination when he enters college. In this way we can be sure that in time every student in school will know that the department exists.

The mental hygiene problems found among college students are very similar to those found in other walks in life except that there are a few more or less minor factors peculiar to college life that may act as an added burden for the individual. Some of these added factors that are more or less peculiar to college life are as follows:

1. The rather acute and sudden emancipation from the home that occurs in many cases.
2. The adjustment to a large number of new acquaintances who are on an equal or superior plane in many ways.
3. Keener competition scholastically and in athletics.
4. The question of making a fraternity or club.
5. The necessity for developing within a short time the ability to stand on one's own feet.

However, after stripping away the more superficial problems of adjustment, we come to realize more and more that the fundamental problems are the same as are found in every other adolescent, namely, emancipation from the home and the establishment of healthy attitudes toward sex and social adjustments. These are more or less closely related and might be called the problem of maturing emotionally. For example, at the end of a term a student fails in enough work to cause his withdrawal from college. If there has been some physical illness as the cause of this failure it is easily recognized and can be dealt with in a frank, open manner. If lack of intellectual ability has been the cause of his

failure, this also can be determined fairly adequately by psychological tests, but it is safe to assume that most college students have the innate intellectual ability to complete college if they have a sufficiently good preparatory school record, college board record and psychological examination grade to be admitted to college in the upper half of the applicants. It usually means, then, that when a student fails scholastically without evident physical or intellectual handicaps the cause is to be found in his emotional life and the most common handicap found here is the retardation in the progress toward emotional maturity. Of course we cannot expect the college student to be emotionally mature, but he should have reached a certain level by the time he is in college that will enable him to adjust to the demands of college life. All the usual causes of retardation of development may be at work in this case or that case, but the most common factor in the group of college students seems to be the influence of the home.

The multiplicity of factors in any given case may be illustrated by a brief summary of a case record. A third-year man was asked to consult the psychiatrist because he wanted to leave college. The request for consultation came from his father who was the principal of a high school. At first the young man could give no particular reason for his desire to give up his college work, but later said that he wanted to leave so that he might build up his health. He knew that his health was not good simply because he had failed to make good in athletics. Further statements were not forthcoming for several visits and then it was found that he had always been more or less concerned about his health although numerous physical examinations had revealed no physical disease. His mother had been a chronic invalid with daily headaches for years and when she was not worrying about herself she was worrying about this only child. She was emotionally inhibited and her marital adjustments had not been at all satisfactory. It was quite evident that she was trying to find her emotional outlet through this boy and had done many things to keep him dependent upon her. When he entered elementary school he was kept in the open air class for four years without any apparent physical reason. During this time the idea was forced upon him that he was below par physically and that he could not compete with the other boys in their games. Apparently this acted as a strong conditioning factor and this attitude toward

athletic competition persisted in his college life. Another rather common factor that entered the picture around the age of puberty was the problem of masturbation. In regard to this he was told the usual story, that it would cause him to develop tuberculosis or lose his mind. The thing that had the most effect on him was the statement that later on it would probably cause him to lose his manhood. From that time on he redoubled his efforts to build up his body, when at the same time he felt that he was not quite capable of entering competitive athletics. In fact he was afraid that it would take too much out of him and he felt that he should conserve all his so-called vital energy. He became the victim of many doubts and fears. First, he feared the classroom, then he developed fears of certain streets in the city because on these streets he had had a fear of falling. He became more and more particular about his health, would eat six apples every day and never fail to retire promptly at 9 p. m. He belonged to a fraternity but would not attend their dances because they kept him up too late. He also feared studying late at night and this interfered with his scholastic standing. No one in college or in his own family knew anything about his condition and he was considered a normal boy except that he was a little over-anxious about his health. It was necessary to resort to some dream analysis in order to get at some of these factors and some of the other factors that have not been mentioned. Finally, he came to understand how his reactions had many false premises. He decided to continue college work and by the end of the year was a honor student and had won his letter in track.

Another example that brings out some other factors is that of a young man who was referred to the Health Service by one of the athletic coaches because he complained of pain in his back. It was evident that the boy was not consciously giving an alibi for his failure because he was considered a very good athlete and had splendid prospects of making the team. It was quite true that two years previously he had had a back injury and later it had been discovered that there was a splintering of one of the spinus processes. It had been considered that this back injury had been well taken care of before he entered college in the fall and in the preceding summer he had been able to row a boat and swim without any return of symptoms. However, soon after entering college the pain

in his back returned and there was no adequate physical basis for this except a possible over-compensation of the muscles of the back. From the very outset in life he had been handicapped by being the only child. His father had not been very successful; had not provided very well for the family and at times had more or less deserted them. The mother, of course, had turned to this only child and had hoped to work out through him all the ambitions which fate had denied her. She had over-protected and over-guided him and a strong emotional dependence had grown up between them, although the boy strenuously denied this and at times showed marked evidence of rebellious reaction toward his mother. His early life had been full of hardships and his social and educational opportunities were decidedly limited before he entered college. He had never seen the inside of a school until he entered the second year of high school. He was definitely superior intellectually and his ambitions were unusually high. At the same time he had a tremendous feeling of inadequacy and was sensitive and shy. To make good in every way in college was, of course, paramount at the moment. He did not want to fail his mother, he wanted to raise the family standard above mediocrity, he wanted to show his father what a real man was, and it all depended upon him alone. He did not want to depend on the family financially and therefore was working his way through college. At first he maintained that sex matters had never interested him; that he never intended to marry, and that sex could not in any way be a factor in his case. After many talks he began to see that he had been inhibiting all conscious realization of sex desire and he was able to work out many causes for this inhibition. It seems, then, that his early life, especially as regards the family influence and his sex life were sufficient causes for a neurotic type of reaction.

The rôle of the situation that he faced upon entering college in the fall seems of considerable importance as a precipitating factor. At that time he had to compete scholastically with boys who were not working their way through college. He had competition in the job which he held. He wanted to make the swimming team and the crew. He also had to compete socially with boys who came from better families and who had already learned to make social adjustments much better than he. The fraternity rushing undoubtedly caused some conflict although he denied it. His final reaction gave

a typical picture of an agitated depression with thoughts and threats of suicide. He recovered, however, just in time to take his final examinations and he passed with high marks.

These examples represent some of the more or less definite psychiatric problems that should be easily recognized by faculty and family, but much of the work is concerned with the so-called normal person who tells only the psychiatrist of his particular problem. With the so-called normal student and the superior student there seems to be a great field for the mental hygienist to add something to the general efficiency of these people. To classify cases seen among the students is a very difficult task because there is so much overlapping in any particular classification that may be adopted. The following classification gives a general idea of the problems encountered:

	Per cent
Frank mental disorder which includes mostly depressions and neurotic reactions	45
Scholastic difficulties	25
Sex problems	15
Personality problems	15

Each year over one hundred student cases have been treated in the Department. This usually means numerous consultations with the psychiatrist and consultations by either the psychiatrist or social service worker with the Health Service, various members of the faculty and the family. In all these consultations the confidences of the patient are safely guarded. It has been found that there is a definite place for a psychiatric social worker even in a men's college and much of the work done with the family falls to her lot. The department for obvious reasons has become interested in the student before he reaches college and efforts have been made to study situations in the preparatory schools and to spread the idea of mental hygiene to these schools. However, it is well recognized that the root of the problem that we find in the college student goes back, as in all cases, to the very early years of life and for that reason the college mental hygienist should be a psychiatrist well versed in the mental hygiene of all ages from infancy to maturity.

DISCUSSION.

DR. FRANKLIN G. EBAUGH (Denver, Colorado).—I would like to ask Dr. Thompson what subjects he covers in the course of mental hygiene.

DR. KARL MENNINGER (Topeka, Kansas).—I want to rise to commend the clarity of the speaker's paper and to indicate the satisfaction that many of us feel in the growth of interest in this particular work. The college student who does rash things, who does unsocial things, who does things which the rest of society disapproves of can be regarded somewhat more critically, more discriminately, more effectively, by the right sort of scientific approach than if his case is relegated to the consideration of disciplinary committees and deans of men and deans of women, with the ordinary and, I hope, fading point of view. The psychiatrist who is the mental hygiene counsellor looks at these problems from the standpoint of a different motivation, a more definite classification, a better understanding, than those whose attitude is merely that of censoring.

The mental hygiene counselor is, in a sense, a non-censorious person who is not trying a student for his misdemeanors, if they be misdemeanors, or his faults, if they be faults, or depressions, but is one who is trying to help the student understand what is wrong. Incidentally he should, I think, help the faculty understand what is wrong. It is a presumption that ultimately all disciplinary committees will have as a member, if not as their chairman, the mental hygiene counselor.

DR. LLOYD J. THOMPSON (New Haven, Conn.) (Closing).—Our course in mental hygiene covered thirty hours of work, which consisted of lectures, informal discussion and book reviews. The subject matter started, of course, with the biological point of view, and we tried to develop the idea of the relation between mind and body from that point of view. We brought up the discussion of the emotions, and the physical reactions to the emotions. We discussed mental mechanisms to some extent. We had only one session on mental diseases. The latter part of the course was devoted almost entirely to a discussion of whatever the students chose to bring up themselves.

PSYCHOPATHIC PERSONALITY AND PERSONALITY INVESTIGATION.

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Despite the vagueness that surrounds the term "psychopathic personality," and the difficulty from the standpoints both of valuation and description in determining what is psychopathic, it should be observed that there is an extraordinarily numerous class, admitting of fairly secure clinical segregation, to which in practice the term "psychopathic personality" is usefully applied. These people are of much interest both practically and scientifically considered, and from both psychiatric and sociological points of view.

In some form we find abnormality of personality in the history of most persons who fall ill of functional mental disorders, but there is a great number of persons mentally disordered in whom maladjustments seem to remain within the range of personality difficulties. This legion of deviates forms one of the most important of all the classes that come to the attention of psychiatrists, psychologists, and penologists. Since almost always these psychopaths come for treatment not as *sufferers*, but as *offenders*, their sociological interest becomes at once apparent. They include a great number of alcoholics, drug addicts, criminals, failures, vagabonds, eccentrics, and a variety of types of inadequate, unstable and incompatible people, who affect for the worse some community, whether large or small. They are usually found to be deeply affected, strongly entrenched in their maladjustments, displaying behavior patterns which are habitual.

From the side of psychopathology, the interest in psychopaths is not primarily in the manifestations of their behavior and the consequences of that upon the community, but in the study of the deviations in their motives and adjustments. As a class they display a tendency to make excessive demands upon the environment, and this remains as a distinguishing characteristic. One sees

in studying them that they have failed to pass through the stages that the normal child traverses in progressing towards his final and mature type of adjustment to reality. They have retained techniques common in early childhood, or the equivalents of them. They consummate their psychopathic development by a process of rationalization in which they are able to justify their own behavior and their demand that the environment adjust to them.

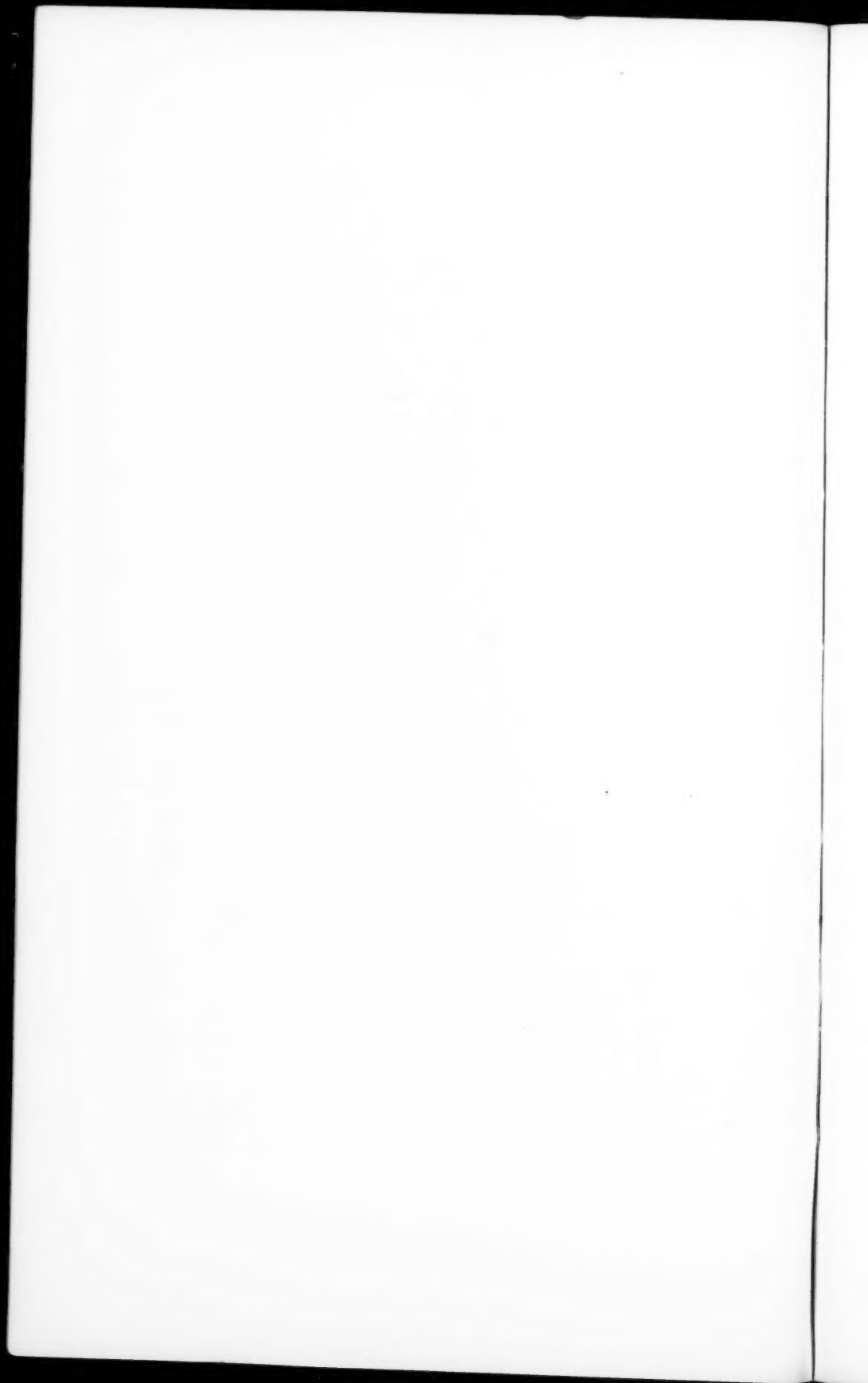
The social importance of the psychopath and the sociological implications of the problem which he presents are thus indicated, but several aspects of the social relations of the group and its investigation may be mentioned:

Every psychopath is conspicuously a storm center in some community, be it family, or school, or other institution, or even nation. The adequate study of any psychopath is, broadly speaking, sociological as well as psychopathological. It is the study of the individual in his total social setting. The claim of the individual to psychopathy is directly proportionate to his deleterious effects upon his environment. As an individual who has adopted a peculiar technique for the satisfaction of his excessive demands he is of distinct social interest; he is aberrant, a cross-current in the social fluid, and the type of the thing we are likely to call *evil* in any mechanism, structure or association. As the embodiment of a pathological state of mind he is comparatively uninteresting and unimportant. Under conditions favorable to himself he may be in all ostensible ways quite well, while at the same time he is a disturbance and a menace of far-reaching significance. The striking example of this is the psychopath who becomes a national or international figure: who may distort perhaps the politics or the philosophy of a nation, and impress the whole world with the marks of his psychopathy.

Another social aspect of the psychopath is revealed when we try to appraise and understand some type of psychopathic behavior prevalent in any cultural level or area, and find that we cannot do so, that we cannot get any clear perception of the significance of that behavior, without a description and analysis of the behavior, the motivation and origins of behavior patterns and personality types displayed within the groups in which the particular type of psychopathy develops: for example, when we come to close quarters with the problem of drug addiction, alcoholism, criminality.

Specifically the question at this point is likely to arise in the form: Are we dealing with a population which is *essentially* the run of the mine in a wider class, or are we dealing with special or individual formulations? Most of our problems in criminology are backward because we lack the knowledge of such relations, and are not yet able to talk in terms of motivation and adjustment of individuals and cultural backgrounds in dealing with these questions. It cannot be too optimistic to suggest that psychopathology will produce in time precisely the techniques and results that are needed to overcome the obstacles that are now felt when we study, for example, the delinquent population.

There is another aspect of the study of psychopathic personality in its social relations, quite different from the two as yet mentioned: this is the problem of the psychopathy of groups with reference not to the presence or incidence or effect of the psychopathic individual or type in a community, and the relations of pathological behavior patterns to culture, but the investigation of what we may call the group consciousness as such. Here there is scope for much progress, and a point at which psychopathology may yet introduce methods of some precision into the wider problems of sociology. It may be assumed that within any group there is a tendency towards or possibility of the production of motives, adjustments, and behavior, which are relatively pathological: a striking and perhaps sufficient illustration is the behavior of the national consciousness, particularly in its motivations in war. The thesis here is that the thorough and adequate investigation of the individual consciousness in its pathological manifestations yields us precisely the background needed for the study of the group consciousness—that is, for the development of a scientific socio-pathology.



THE PROBLEM OF ADEQUATE PERSONALITY RECORDS: A PROPOSAL.

By HAROLD D. LASSWELL,

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Research into personality problems, though embarrassed by a profusion of terms and hypotheses, is chiefly hampered by the prevailing uncertainty about the relative value of the different kinds of documents now available about individual cases. Synoptic extracts from life histories are published in psychological, sociological, and psychiatric journals, and while these are of some value in showing the extraordinary range of human experience, they are too scanty for detailed criticism of the author's interpretations. The relative significance to be attached to solicited written autobiographies, to reports of psychoanalytic interviews, and to biographies prepared by the social service type of interviewer is by no means clear. All sorts of important questions about the circumstances surrounding the taking of the record, and about the precise meaning of the terms of summation and interpretation used, cannot be adequately answered.

Under these conditions it is proposed to study certain selected individuals as intensively as possible by all known methods for the sake of obtaining exhaustive records in terms of which many fundamental issues, now incapable of precise discussion, may be dealt with. From and for each subject the following documents should be made available:

1. *Autobiography*.—The subject should be invited to write out his life history before psychoanalytic interviewing commences. He may be provided with a more or less detailed topical guide, or left to follow his own devices. On the assumption that the less controlled document is likely to prove more revealing about the individual, it is suggested that the latter alternative should be tried out first. E. T. Krueger solicited autobiographies from students for whom he provided brief instruction sheets. The docu-

ments which he obtained were classified into several types, of which he provides samples. He speaks of two main classes of material, the introspective and the conventional. A further classification divides them into the confessional, the egotistical, the scientific and the naive documents. The possible correlation between typical documents produced under these conditions and the types of personality disclosed at the end of analytical procedures, can be investigated.

2. *Verbatim Psychoanalytic Record.*—The verbatim report of much that transpires in the interview may be secured by means of an invisible stenographer, or a mechanical recording device. The record of the analytic interview will be an enormous document, for it will include all that passes for an hour a day for each case during six months or so.

Psychoanalytic documents now available in institutional or private possession suffer from several insufficiencies. The most serious scientific drawback is that they are not full enough to show the actual process by which the history of the case is built up. Even where the analyst tries conscientiously to make a complete record of what transpires, he trusts his memory, and is exposed to all the pitfalls inherent in the processes of recall. He ignores or forgets a great deal, and he condenses the material in unknown ways. He invents and amplifies in the light of his growing convictions about the interpretation, and often his notes are scribbled in a form which is scarcely intelligible to him after they are old. The pressure of many cases, the over-powering bulk of the material which is produced by a patient, and the growing certainty on the part of the experienced analyst that he can follow all that is essential from memory or with brief notes conspire to abbreviate analytical records. A few stenographic records have been taken and published of the productions of psychotics.

Generally speaking, medical records are weak on the description of the individual in his ordinary social relations. Physicians tend to have what may be dubbed the "syndrome mind" and to minimize the relevance of all but the explicitly pathological. The mind of the physician is prepared to discern many shades of meaning in the general area of the "pathological." The mind of the student of every-day life is trained to observe many shades of dif-

ference in the area of the "normal." The physician is intent upon distinguishing one clinical syndrome from another, and is inclined to regard "normalcy" or "health" as the residue after all explicitly pathological symptoms have been subtracted. The student of society is trying to isolate and explain the typical changes which appear in the relationships of people, most of whom he assumes are "well." The physician is inclined to believe that if only individuals are freed from "disease" that human affairs will adjust themselves rather easily. The social scientist is busy with the difficulties which arise even among those who have a clean bill of health from the doctors, and which somehow or another fail to be adjusted "very easily." Vested professional interests and biases tend curiously to herd the physicians and the social scientists into unsympathetic camps. When the social scientist tries to use medical records, he finds that he is dealing, not with complicated personalities, but with an exhibition of syndromes which have a vague penumbra of humanly recognizable traits. The records of European institutions for the care of the mentally ill are much more backward in this respect than the records of the best American institutions. American institutions have discovered the invention of the typewriter, and they have been permeated by many sociological and psychological conceptions.

Many of the psychopathological records are truncated from the point of view of the student of the personality as a whole because "short cuts" often given therapeutically satisfactory results. A "lead" is followed when it is "hot," and the analyst, who is busy reactivating infantile material in the subject, is likely to ignore many of the sublimated structures of the personality. Data which are desirable for the sake of creating a picture of the whole personality are often scattered far and wide along the course of the analytic process, and are **never** collected in sufficient detail to permit correlations which are of interest to the student of politics or economics.

Even where the will to see the whole personality is present, very primitive sociological and psychological categories may be used. Terms like "Radical" and "Conservative" are strewn about, frequently without definition and without illustrations which have any claim to a representative character. Exact sociological analysis of "sample" situations of subordination, cooperation and

superordination is a pre-requisite of dependable data. The records of those institutions which seriously administer the Hoch-Amsden guide to the study of the personality are of the most value to social scientists at the present time.

One means of improving the value of the analytic interview is to prepare an exhaustive inventory of points to be covered. Dr. G. V. Hamilton made out a list of four hundred questions on Marriage and Sex, which he asked in regular order, and the answers to which he at once recorded in the presence of the interviewed. He would probably agree that the value of his results would have been increased had there been a period of free analysis at the end of the questionnaire proceedings. Even where the main feature of an analytic hour is a fixed list of questions, some time could be taken up with the reporting of dreams and preoccupations. Efforts to correct erroneous or incomplete answers to early questions are of special interest.

A procedure like that of Hamilton loses the advantage which would rise from permitting the individual a great deal of latitude in telling his story and following his phantasies in his own way. I predict that one of the most important correlations to be found in complete analytical records will be between typical forms of volunteering information at the beginning, and the developmental type, as revealed after prolonged analysis.

It is possible to combine the advantages of system and freedom by the use of a long questionnaire or topical inventory, which is kept in the background and consulted from time to time by the interviewer to guide him in eliciting the kinds of material which have not been brought into the clear.

The kinds of fact which various students have thought to be significant, and in the light of which such a master-questionnaire or master-inventory can be prepared, are revealed in the following: Kretschmer's *Psychobiogramm* (published in H. Hoffmann, *Das Problem des Charakteraufbaus*, as an appendix); Heyman's trait list (republished in *Gesammelte Kleinere Schriften*, Dritter Teil); the psychograms of W. Stern (in *Die differentielle Psychologie in ihren methodischen Grundlagen*), of Baade, Lipman and Stern (*Zeitschrift f. angewandte Psychologie*, Bd. 3), of P. Margis (Beslau dissertation, 1911, *Das Problem und die Methoden der Psychographie mit einer Individualanalyse von E. T. A. Hoff-*

mann), of L. Lewin (*Friedrich Hebbel, Beitrag zu einem Psychogramm*, Berlin, 1913), of E. Stern (*Patho-psychographische Untersuchungen, Archiv f. Psychiatrie u. Nervenkrankheiten*, Bd. 61), of F. Kehrer and S. Fischer, (*Modell einer klinisch-experimentellen Pathographie, Zeitschrift für die gesamte Neurologie und Psychiatrie*, Bd. 85); the outlines of Dr. Paul Federn (*Schema der Libidoaufnahme*, MSS. in my possession), of F. L. Wells (MSS. in my possession), of G. V. Hamilton, of Adolf Meyer (mimeographed MSS. in my possession), of Amsden and Hoch, of Floyd Allport, and my own list for the study of political personality (MSS.).

3. *Psychoanalyst's Notes on the Daily Interview.*—These should be recorded immediately at the end of the hour, and they ought to include things which are likely to escape the mechanical recording device or the stenographic report, such as the impression conveyed of the subject's greeting and farewell, random movements on the couch, significant voice modulations (short of a complete movietone or vitaphone equipment, voice modulations can only be approximated). The analyst ought also to include his growing interpretations and predictions, and to note down any observations which he made upon the patient in chance contacts outside the analytic hour. The analyst should also observe alterations in his own affective attitude toward the patient.

It would be interesting, also, to have the analytic interviewer summarize the entire situation, as if there were no mechanical record, for the sake of determining the relationship between the two records.

4. *Subject's Notes on the Daily Interview.*—The subject should be asked to bring his notes of the previous interview for deposit in a locked record box at the beginning of every hour.

If the subject can be induced, in addition, to keep a diary, and to make it available, this should be added to the records.

5. *Mechanical Record of Couch Movements.*—The rigidity or the flouncing of the subject on the couch should be recorded. The technique employed in sleep experiments can be used here. If it is possible to secure a mechanical recording device for the verbal phenomena, the couch movement measurements can be exactly synchronized. Otherwise, estimates will have to be made of the correlation.

6. *Specimens of the Subject's Handwriting.*—The subject should be trained to sign his name and the date on a slip at the close of every hour. From this material the alterations in the expression of the personality in handwriting can be assessed, either by the method of Klages or by more exact procedures.

7. *Biography of the Subject.*—The biography of the subject should be prepared according to a master-schedule which permits correlation with the data procured in the autobiography and in the analytic interview. The biography should use every source except the subject himself.

The biography might very well include observations made upon the subject in the days prior to the beginning of the analytic interview by a biographer, whose function is unknown to the subject, who acts as a participant observer in his ordinary life situations (as a member of his fraternity or shop group).

The biography might also include observations made upon the behavior of the subject during the course of the analysis by a biographer whose true significance is unknown to the subject and who lives as a participant observer in his life situations.

One valuable feature of hospital records often is the line of comment made upon the ward and grounds and consultation room behavior of the individual subject by shrewd nurses and physicians. The use of the participant observer in the life situations of the normal person who is undergoing an analytic procedure can be a valuable adjunct to the technique usually employed.

8. *Physical and Psychometrical Examination Records.*—The subject should be given a thorough physical and psychometrical examination, of which a verbatim report (of any alterations from fixed forms) should be secured. The subject should be given two types of tests: (1) Those which are designed to procure data of a routine type which will make it possible to establish the relation of the individual to norms; (2) special tests devised by the responsible physiologist and psychologist of the staff who are trying out new leads which appear to be hopeful. The data which comes into the former category includes all which will enable the case to be compared with the observations of such men as Kretschmer of Marburg, W. Jaensch of Berlin, Draper of New York, and perhaps Scammon (Minneapolis), Stockard (N. Y.), Kraus (Berlin), Ludlum and McDonald (Philadelphia). The new *Aertzlich-*

Psychologisches Institut at Stuttgart, organized by the *Gesellschaft f. Persönlichkeitsforschung* and directed by Roemer, intends to build on the tests devised by Rorschach before his untimely death. Selections can be made from existing tests of intelligence, aptitude, and affectivity.

In the long run, the possibility of hitting upon some lead which proves profitable is the main justification of any research, and tests of the exploratory kind ought to be added to the routine tests.

9. *Analyst's Interpretation of the Total Development of the Personality*.—When the analysis is well along, the analyst should work out a provisional interpretation of the personality on the basis of all available records, citing for each concept which he employs the specific evidence available. Thus when a concept like that of an "oral trait," a "deep castration," a "self-punishment reaction," or an "anal-sadistic drive" is employed, it can be given assignable meaning in terms of the recorded data.

10. *Consultation Record*.—After the interpretation is circulated to the consultants, and the record is made accessible to them, the consultants should be summoned for prolonged deliberation upon the meaning of the material assembled. Questions are now capable of sharp formulation. One man can say, "On page 40 you gave the subject the suggestion which eventually produced the dream on page 140 and finally established the belief accepted on page 240." "You interpret the evidence on page 1000 to show the persistence of traits from the oral-biting phase of libido development, but you ignore the behavior recorded on page 800." "You point to the evidence on page 1500 that the father-identification of the individual is responsible for the choice of an occupation, but you neglect to explain why this father-identification did not produce a certain manner of walking, style of dress, facial twitch, and devotion to golf." After the terms used and hypotheses applied have been criticized in detail, and revisions made or differences more precisely defined, the next step is the invention of procedures by which the subject can be tested to determine as far as possible the facts about the points at issue.

A remarkable fact about personality records heretofore is the cursory interpretation which is given them. The records of institutional cases are better from this point of view than those of private individuals, because they are usually subject to a more or

less detailed form of collective scrutiny. But the mental hospitals have so many cases to handle that the staff conferences upon a single case must be cut rather short. Much time is given to oral summaries of the facts, or to the brief examination of the patient, and the time left for discussion before lunch is limited. Limitations upon discussion are also due to a form of "log-rolling" which is well understood in all political bodies; the situation in hospitals often is that one staff member refrains from criticizing or discussing at length the case of another, thereby securing a tacit immunity from extended consideration for his own case. Often an institutional staff comes to represent a single point of view, and the measure of burning curiosity and divergence necessary to sustain intelligent discussion is missing. Often, of course, the personalities on a staff differ sharply and personal incompatibilities lead to a mutual understanding that discussion is unproductive of anything but ill-feeling. Institutional practice has its share of clinicians who are impatient of "merely theoretical" discussion. When the head of the hospital or the heads of the services discourage discussion, the atmosphere is particularly unfavorable.

Whatever criticisms may be levelled against institutional records, there is more often a greater degree of critical cross-checking than is characteristic of cases reported from private practice. Ruling out the not impossible fabrication of facts to supply an illustration of a plausible distinction, there is the subtle process of "smoothing" off the rough edges of data for the sake of fitting a schematic purpose. These conscious and unconscious distortions can scarcely be detected at all in privately reported summaries, quite often backed by meagre and partly legible notes.

Psychoanalysts are quite certain that most of the criticisms levelled against their procedure are unsound, but the controversy is too often conducted in a spirit of insinuation on both sides which grows in proportion as the specific formulation of issues is neglected, and this neglect is largely due to the lack of adequate records in terms of which definite questions can be considered.

11. *Records of Experiments and Their Interpretation.*—The tests agreed upon among the consultants and the interpretation of their results should occupy the next section in the record. One of the tests might be to follow the alteration in the type of phantasy material produced by the patient if an analyst of a different per-

suasion from the first one were given charge of the case. Another procedure is to undertake to control the phantasy productions of the patient during the analytic hour by means of suggestions or mechanical stimuli supplied the patient during his previous night's sleep. If the conversion mechanism appears prominently in a case, the subject may be tested to determine whether any reflex peculiarities appear (in the concentration reflex of Bechterev, for instance), or whether the acid-base equilibrium shows any significant deviation, or whether the psychogalvanic curves (taken for the whole sleeping period, for example) show marked features.

12. *Subsequent History of the Subject.*

Concluding Remarks: The taking of a few intensive records of this nature should be looked upon as an exploratory measure which is one part of the work of a research unit on personality. Whether the incidental advantages expected would arise cannot of course be predicted with assurance. But the expectation seems reasonable that the results would be indicative and provocative.

The personality unit visualized for this undertaking need not be large. A psychoanalytic interviewer, a psychometrician, and a physiologist, with assistants, could cooperate on a few intensive studies of this kind, and keep the rest of their time free for the pursuit of individual interests, and later for the supervision of the many quantitative inquiries which may be expected to grow out of this type of investigation.

The individuals used for the intensive studies should be "normal" people, or individuals who suffer from minor difficulties. The intensive study of "normal" people for the sake of securing a control upon pathological material has been given an impetus by Hamilton, who used "normal" volunteers for his subjects. ("Normal" for certain sociological groups can be defined after adequate investigation of the background of the specific individuals considered). Most of the psychotic cases would not lend themselves, obviously, to the kind of intensive inquiry here proposed.

The importance of more refined records than we now have was illustrated to a group in this way: A small number of intimate life histories which were secured from "normal" (non-institutional) people, and an equal number which were from institutional cases (omitting the clinical manifestations of the psychosis), were read to a trained committee, who were unable to pick out the abnormal

documents from the normal ones. It is usual to dispose of circumstances like this by saying that the difference between the "normal" and the "abnormal" is one of degree only, but the point seems to be that there is no valid means of stating the degree at present.

The records desired about each of the intensive cases may be listed again:

Autobiography.

Verbatim Psychoanalytic Record.

Psychoanalyst's Notes on the Daily Interview.

Subject's Notes on the Daily Interview.

Mechanical Record of Couch Movements.

Specimens of the Subject's Handwriting.

Biography of the Subject.

Physical and Psychometrical Examination Record.

Analyst's Interpretation of the Total Development of the Personality.

Consultation Record.

Records of Experiments and Their Interpretation.

Subsequent History of the Subject.

It will be possible to correlate the results of different procedures in collecting and interpreting data. We will be able to evaluate the relative significance of materials offered by different investigators, and found in the archives of mental hospitals.

PROPOSED RESEARCH IN EPILEPSY.*

By R. L. DIXON, M. D.,

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For several years we, of the Michigan State Institution for Epileptics, have been promoting an argument for an institutional feature which we believe is unique, in that such a feature does not exist in any state or public institution for the care of epileptics, so far as we are aware.

It has been our continuous policy to have under way investigations and studies of problems related to epilepsy to the end of contributing some definite part to the sum total knowledge of the subject. In these studies we have met the usual difficulties and obstacles with which public institution men are familiar, chiefly, lack of facilities, both in material and personnel; frequent and un contemplated interruption of work; no possible definite program of procedure, and an apparent lack of appreciation on the part of state government of the value or feasibility of systematic and concerted research to such an extent as to call for an expenditure of money in an amount beyond that which can be made available for such a purpose by the curtailment of other essential institution activities.

Believing that an, as yet, unsolved problem which is recognized as sufficiently significant to warrant a two million dollar investment in housing facilities, and over a quarter of a million dollars expenditure for maintenance annually, is of such prime importance as to warrant further the establishment and support of a definite institution department for the sole purpose of research, we have asked the State of Michigan to found at its institution, such a department.

Under existing conditions the institution's budgets, as passed by legislatures, are based upon a careful determination of the minimum

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Section on Convulsive Diseases, Minneapolis, Minn., June 6, 7, 8, 9, 1923.

possible cost of feeding, clothing, keeping warm, and giving meager medical service to a group of so-called state wards. Our blank forms for reporting proposed budgets to the state departments and legislatures contain provisions only for the foregoing items. Each biennial period during the past eight years we have added to the budget sheets the classification "Research Department," and have proposed amounts varying from \$15,000.00 to \$25,000.00 for that purpose. To date these efforts have availed nothing tangible, but have promoted no little discussion of the proposition, which has gradually assumed a more favorable aspect. We now have a justifiable confidence that the forthcoming legislature will provide adequately for that purpose.

The reasonableness of such a department is substantiated by two fundamental principles—first, the very large annual expenditure for what amounts to very little more than custodial care of epileptic dependents, and second, the readily acknowledged paucity of our exact knowledge of the subject of epilepsy. There is no other malady with the prevalence of epilepsy, about which we have so little positive knowledge, and concerning which we disagree so widely on the features on which we are inclined to think we are so well informed. It is not necessary to detail this general principle. We have no agreement on the pathology—in fact, we do not agree that there is or is not a specific pathology of epilepsy. Some of us consider epilepsy as a definite disease entity—as definite as tuberculosis or syphilis, while others emphasize its comparability to certain symptoms, as fever or cough. Some of us believe the disease is definitely organic, while others describe it as functional or as psychogenic. We do not agree as to what factors are necessary in order to ascribe the term "epilepsy" to a given malady. Some emphasize the motor manifestations as characteristic; others the disturbance of consciousness, and others the personality qualifications. We diagnose epilepsy with all or any, or even none of these classical traits, just as some clinicians recognize scarlet fever with no rash and no fever.

We concede that a person does not abruptly become an epileptic at the moment of his first so-called seizure; that he must have represented a departure from the normal for a period more or less definite, prior to the convulsive onset, but we do not agree as to what constitutes the characteristic pre-convulsive qualification.

Some of us deem essential an ancestral study of a patient, while others are satisfied to ascribe the whole affair to a gastroptosis. The whole subject of a possible infectious agent should be reviewed. Much has to be done on the subject of induced convulsions and a comparison with epileptic convulsions. We must observe more induced convulsions in epileptic persons. We might go on at length citing the interesting and important possible relationships of diet, protein sensitizations, endocrine relations, reflex irritations, body fluid chemistry, heredity, endotoxins and exotoxins, trauma, many biochemical problems, and therapy in its great breadth, as being in dire need of intensive research study. We believe that there is, in a large percentage of cases, a definitely diagnosable stage of epilepsy preceding the stage characterized by convulsions and temporary disturbance of consciousness. This stage we consider comparable to the incipient stage of tuberculosis, or the pre-cancerous stage of carcinoma. Its determination and recognition in epilepsy bears the same relation to the arrest or cure of the disease that the determination of the incipient tuberculosis or even the predisposition to tuberculosis bears to the prevention, arrest, or cure of that disease.

In our minds this phase of the proposed research bids fair to be the most fruitful and a clear solution of it would make unnecessary much study of later phases. We have under way some efforts at a study of a large group of children, in the effort to determine some who are potential epileptics, or really incipient epileptics, and then check our judgments by developments as years go on.

We are not even hopeful that these essential features can be satisfactorily or successfully worked out with our present method of making research a mere incidental in the routine of institution activities. There does not seem to be a place for even part time research in the regular program of our institution staff. Even then much creditable research on the subject, in recent years, has come from the men engaged at institutions caring for epileptics.

It seems to us that all arguments point to the need and absolute necessity for established research departments or laboratories on this subject, and that these laboratories should be located at every state institution for epileptics. We would propose such a department as just as distinct in an institution as is the laundry or the farm. Let it be set up in the budget as a definite department, with

an allotted finance and a prescribed personnel. We should not let this department absorb the regular clinical laboratory or any other presently existing phase of institution work, except insofar as individual features of work can be properly ascribed to research. If possible we would want a separate building, or at least a distinctly separate portion of the hospital, set aside for this department. The department must then, of course, be well equipped and given a personnel highly trained in research.

While the management and supervision of the several research laboratories would be the direct problem of the individual institutions, the designation of suitable specific studies and the encouragement of certain work might well come from an organization such as this—the section on convulsive diseases. An annual program could be worked out and allotted, having in mind each institution's peculiar capabilities or equipment, and a combined report made public, or at least submitted to our annual meetings. A committee of this section might keep in touch with the work as progressing in the several institution laboratories during the year, and perhaps lend some assistance in securing the establishment of such work in those institutions not able to take up the work at once.

Our plea, then, is for the establishment of departments of research in each state institution for epileptics; the promulgation of a definite program of research each year; and the correlation of this work under a committee of this section of The American Psychiatric Association.

THE NEW STATISTICAL SYSTEM FOR INSTITUTIONS FOR EPILEPTICS.*

By HORATIO M. POLLOCK, PH. D.

Pursuant to the action of the Section on Convulsive Disorders at its meeting last year in Cincinnati, your committee on statistics, with the assistance of the National Committee for Mental Hygiene and the New York State Department of Mental Hygiene, has completed a statistical manual, statistical data cards and tabular forms for the use of institutions for epileptics. All of these have been printed and are now available to your institutions. The manual was printed by the press of Craig Colony, primarily for the use of that institution, but a sufficient supply was struck off to permit complimentary copies to be given to the other institutions. The cards and tabular forms have been printed by the National Committee for Mental Hygiene and will be furnished at cost to any institution desiring them. Under this arrangement the cost of introducing the statistical system in an institution will be very small.

In discussing this new statistical undertaking I shall attempt to cover three phases of the subject, namely: The purpose, the plan and the procedure.

Why collect statistical data? Why trouble overworked doctors, stenographers and clerks to prepare statistical records and reports for the use of administrative officers or the general public? We all know our institutions are kept full to overflowing; why bother to count the patients we have or those that come in or those who go out? We all know we never have enough money for the things we want in the institutions, why bother to keep track of what we do have or what we receive or what we pay out? Why use the state's money in keeping books and other records just to satisfy the whims of some bureaucrat in a state or federal department? You've heard these or similar questions, although I think they are asked less frequently now than they were a few years ago.

*Read at the eighty-fourth annual meeting of The American Psychiatric Association, Section on Convulsive Disorders, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

A consensus of opinion has developed in recent years that accounts and statistics are necessary factors in any well ordered business or institution. No one would now question the value and necessity of accurate records and statistics of financial transactions. Few would question the value of records and statistics of institution population. It is only when we take up less familiar lines of inquiry that doubt is raised.

It is well, however, that we have a clear conception of the purpose of the statistical work we are doing. A bricklayer who knows he is helping to build a cathedral will do his work with more satisfaction than one who knows nothing of the purpose of the wall he is constructing.

In general the principal purposes of statistics are:

1. To furnish definite bases for comparison of related concurrent facts.
2. To enable comparisons to be made of data relative to the same class of phenomena compiled for different periods of time.
3. To reveal laws underlying phenomena that could not be determined by individual observations.
4. To show trends in phenomena that otherwise would be undiscoverable.
5. To reveal relations of cause and effect which otherwise would remain hidden.
6. To serve as a guide for administrative, legislative, social and commercial action.
7. To reveal success or failure and thus become true indices of progress.

The value of statistics in the eyes of the public is further indicated by the extent of their use.

Statistics are now being compiled and used by industrial and commercial corporations, banking houses and trust companies, stock exchanges and bond houses, public utility corporations, life insurance companies, social and governmental agencies, and by a large variety of other organizations. In most cases the statistics are not compiled merely to fill out an annual report, but to supply data needed for the successful conduct of the business or undertaking. Take professional baseball, for example. A statistical record of each game and of the daily work of each player is made and the results are summarized and published, in part daily, in part weekly

and in part yearly. These figures not only furnish information to the public, but supply a basis for estimating the value of each player, and are used as guides in building up the various teams. The popularity and success of professional baseball depend in very large measure on this statistical work.

Social and institutional statistics in comparison show a deplorable lack of development. Using terminology borrowed from the institutions for the feeble-minded we might say that some social statistics are moronic, some imbecilic, and a few idiotic. Now and then we find some that would rate as dull normal, but practically none as normal or superior. It is a condition that calls for psychological and psychiatric treatment with sympathetic statistical nursing.

In this presence I need not emphasize the fact that there is special need for good statistics in institutions for the treatment of epileptics. Up to this time there has been no uniformity in statistical procedure in this field and no general agreement as to the classification of the disorders treated. Prior to 1923 there had been no special federal census of epileptics, and even now there is little definite knowledge concerning the number of persons with convulsive disorders in various parts of the country. No one knows whether these disorders are increasing or decreasing and no one can predict with any degree of assurance what will be the future demand for additional institutional accommodations for epileptics.

Having agreed that it is worthwhile to collect statistics, we will consider the various steps to be taken.

The first essential is a plan. All good statistics must be carefully planned and the plan should be complete before any data are assembled. This is statistical technique; it is also just plain common sense. In statistics, as in home or hospital construction, the architect precedes the builder.

Statistical planning includes several distinct steps. First, there must be a clear conception of the whole study. What questions are to be answered? What facts are to be shown? What distinctions are to be made? What disputed points are to be settled? What use is to be made of the material? The end must be seen from the beginning. An architect can make changes when a building is nearly completed but such changes are always censurable and costly. In statistical work of wide scope either in territory or time, changes

to amend past work are practically impossible. Suppose for example, that after a federal census had been started someone decided to add another item to the schedule. All of the printing and enumeration work done up to that point would have to be junked and a fresh start would have to be made.

In less pretentious studies, failure to provide for essential material would not be so conspicuous but might seriously detract from the value of the work.

After the scope of a statistical study has been determined the next step is to prepare schedules for the collection of the data. This is an important piece of work as on it depends the success or failure of the statistical undertaking.

For the statistical system for your institutions four card schedules have been prepared, namely: First admission, readmission, discharge and death. Each schedule is designed to provide the data needed for institution reports and for research statistical work. The schedules are not designed for administrative purposes. A separate administrative card index of patients should be provided. Failure always results from attempts to combine statistical and administrative schedules.

In any statistical system, after satisfactory schedules have been adopted, provision for filling them out must be made. If the schedules are at all difficult or are to be filled out by many different persons a manual of instructions must be prepared. The purpose of this is to secure uniformity in recording and reporting data. All classifications used must be clearly outlined and explained and all information necessary to a complete understanding of the items must be given. In other words, all statistical units used must be defined and the difficulties likely to be encountered must be foreseen and the decision to be reached with respect to each must be made clear. In the manual prepared by your committee the various captions on the schedules are taken up in order and the requirements for supplying the data called for are given. The central feature of this new system, naturally, is the classification of the epilepsies. In this respect the system is similar to that used in the hospitals for mental disease, in which the grouping of the psychoses is most important. In classifying the epilepsies, your committee adopted so far as possible an etiological basis, believing this to be more fundamental and more useful than any other.

Under the scheme adopted admissions are to be separated first into three major divisions, namely: Symptomatic, idiopathic and not epileptic. The symptomatic division is subdivided into three groups, as follows: (1) Toxæmic, exogenous; (2) toxæmic, endogenous; and (3) due to definite brain disease. Each group is further subdivided into types. The idiopathic division also comprises three groups, designated as follows: (1) With psychogenic factors; (2) with myoclonia; (3) others and undifferentiated.

The classification is similar to the one formulated by Dr. H. Douglas Singer and the author in 1920 for the use of the State of Illinois.

In course of time as knowledge of the convulsive disorders is gained, it is expected that the classification will need modification; other parts of the plan will also probably need revision from time to time. It would seem wise to make your committee on statistics a standing committee so that all proposed changes in the system could receive adequate consideration.

We have discussed the purpose and plan and now come to the final topic—the procedure.

A plan is of no avail unless it is properly executed. All of the records provided for by the statistical scheme must be made in accordance with the instructions given in the manual. It follows that the persons who make the entries must be thoroughly familiar with the plan and must be painstaking and accurate in their work. They must also appreciate the significance and importance of the work they are doing. It is likewise essential that superintendents, clinical directors, and members of medical staffs should take an interest in the statistical records and reports and see that they are properly prepared.

The statistical cards when filled out form a permanent record and it is of the highest importance that all the data on the cards be accurate and complete. No card should be filled out until the case has been thoroughly studied. In this connection I wish to urge you not to place too much reliance on the information supplied on commitment forms. A commitment form is not a statistical schedule and the data given thereon cannot be considered satisfactory for statistical purposes until it has been checked up and verified.

Responsibility for the preparation of the statistical cards should be definitely fixed. The cards after being filled out should be placed

in a temporary file until the close of the year. When the cards of the year are complete they should be carefully checked with the case histories by the clinical director or another member of the medical staff and all necessary corrections should be made. The cards would then be used in making up the tabular forms for annual reports. In states having central statistical offices, a duplicate set of cards would be sent at the close of each year to such office. The cards would also be of service in filling out the annual schedules of the Federal Census Bureau.

Your association in adopting this new statistical system has shown its willingness to keep pace with the modern movement for better records and statistics. It is hoped that all of the institutions will cooperate by immediately accepting the system and putting it into full operation.

A statistical system such as the one you have adopted for our state institutions is a great cooperative undertaking which depends for its success upon the work of many persons. It may be likened to a symphony orchestra in which each player has his own instrument and part to play—a truly great responsibility. But in playing his part he follows the baton of the conductor rather than his own inclination, knowing that in so doing he is contributing to a harmony whose grandeur and beauty far transcends his individual effort.

MINNESOTA IN THE DEVELOPMENT OF THE CARE OF ITS INSANE.*

By ARTHUR F. KILBOURNE, M. D., ROCHESTER, MINN.

In 1844, when the 13 immortals met in Philadelphia and organized the association of "Medical Superintendents of American Institutions for the Insane," Minnesota, in name, did not exist; included in that vast area transferred by France in the Louisiana purchase, it was an unknown wilderness, having been visited by few white men. This hostelry, flanked on either side by the avenues Hennepin and Nicollet, commemorates the visit of the three valiant Frenchmen to this region in the 17th century. These men were supposed to have been the first white men to explore this wilderness, but in 1898 there was discovered at Kensington, Minnesota, a Rune stone which describes the visit in 1362 of some thirty Swedish and Norwegian explorers to this region. In 1849 a territory was organized, taking the name of Minnesota, it having up to that time been included in the territory of Wisconsin, and was admitted as a state in 1858, at which time it had a population of some 5000 whites, 1000 in St. Paul and 275 in Minneapolis, which was then known as St. Anthony. Minnesota, the land of "sky-tinted waters" reflected from the surface of its 10,000 lakes, including in its borders the source of the "Father of Waters" and of the Red River of the North, although now well settled, retains much of its attractiveness which made it the happy hunting grounds of the Indians.

The history of the development of the care of the insane in Minnesota is analogous to that of most of the other states. The first mention of any provision for their care is in an act passed by the legislature in 1863 authorizing the Governor to place in the Iowa State Hospital, at Mount Pleasant, a limited number of destitute insane; fifty-five patients were thus provided for. In 1866 the legislature passed an act "For the establishment and location of a hospital for insane and to provide for the regulation of the same." A board of seven trustees was organized which purchased

* Read at the eighty-fourth annual meeting of The American Psychiatric Association, Minneapolis, Minn., June 5, 6, 7, 8, 1928.

an old hotel in St. Peter. Dr. Samuel E. Shantz having been appointed Medical Superintendent, Acting Steward and Treasurer, entered upon his duties in November, 1866, finding, as he says in his first report—"A dilapidated hotel undergoing repairs." This temporary hospital was soon overcrowded, but even then Dr. Shantz did not refuse to admit some patients who had been brought in open wagons from a distance of one hundred miles or more, crowding them in with the rest rather than have them undergo the fatigue and exposure of the return trip home.

In conference with Architect Sloan and Dr. Kirkbride, plans were made for the permanent hospital to be located on land donated by the citizens of St. Peter. Dr. Shantz died while yet this institution was only outlined by its basement walls. He had been a student under Dr. Joseph Workman, and was associated with him in the Toronto hospital, coming to St. Peter from the Utica hospital, where he was an assistant physician under Dr. John P. Gray. Educated at Toronto and Harvard, he entered the army as a surgeon in the Civil War. He was a member of this association but had only attended the one meeting, that of 1868, dying of typhoid that same year at the age of thirty-three. At the meeting of this association following his death, tributes were paid to his memory by Drs. Gray, Workman and Kirkbride. Dr. Cyrus K. Bartlett, having been appointed Superintendent to succeed Dr. Shantz, arrived in St. Peter in 1868 and the following year a ward in the permanent hospital was ready for occupancy. Dr. Bartlett was an assistant physician under Dr. Pliny Earle at Northampton, one of the organizers of this association. He came to St. Peter Hospital with a well-defined knowledge of the needs of such an institution; he was endowed by nature with a fine presence, a good mind, and an affable, kindly disposition which endeared him to friends and associates. He was Superintendent at St. Peter for twenty-four years, retiring to practice in Minneapolis where he died in 1906.

In 1879 the Rochester State Hospital was opened under the superintendency of Dr. J. E. Bowers who had been associated with Dr. Shantz and Dr. Bartlett at St. Peter. The buildings consisted of one for administration and one small ward, both fire traps, since replaced by substantial structures. These buildings were originally established for inebriates, to be supported by an annual tax of \$10.00 on every person selling liquor, but were turned over to the

state for the insane before ever having been used for the original purpose.

Dr. Bowers resigned in 1889 and was succeeded by the writer. He retired to Duluth where he died in 1923. He was a man of experience in the care of the insane, a fine administrator with an attractive personality, who labored with untiring zeal in developing the institution under his care.

These three men, Shantz, Bartlett and Bowers, under the most trying conditions, paved the way for Minnesota's present efficiency in the care of its insane.

The Fergus Falls Hospital was opened in 1890, Dr. Alonzo P. Williamson being its first superintendent. He had been associated with Dr. Selden Talcot at Middletown, N. Y. Dr. Williamson held his office but two years, resigning to go to California, where he was appointed superintendent at Patton. He died there some years after resigning from Patton. He was succeeded by Dr. George O. Welch who resigned a year or so ago and under whose capable management the Fergus Falls State Hospital was brought to its present high state of efficiency, since maintained by the present executive, Dr. William L. Patterson.

Upon the resignation of Dr. Bartlett, Dr. Harry A. Tomlinson was appointed to succeed him. He remained at St. Peter for twenty years, resigning to take charge of the hospital for inebriates at Willmar, where he died the following year. Dr. Tomlinson, a member of this association and well known to many of you, came to St. Peter from the Friends Hospital; he was a man of scientific and literary attainments, an administrator and one who labored faithfully for the best interests of his patients. He undertook the work at Willmar to carry out some original ideas regarding the treatment of inebriates. As it was found unnecessary to maintain a separate institution for inebriates, this institution was changed to a state asylum for the care of the insane, reserving a ward for inebriates.

Dr. Tomlinson was succeeded at St. Peter by Dr. R. M. Phelps with an experience of nearly thirty years at the Rochester hospital. He resigned two years ago and was succeeded by Dr. George H. Freeman who had been associated at St. Peter and Willmar with Dr. Tomlinson and was for a time Superintendent at Willmar.

In 1900, the increase in the number of insane necessitated additional room for their accommodation. Not caring to increase the size of the three state hospitals, the Trustees, after an investigation of the Wisconsin system of county asylums, and being confirmed in the opinion that state care was preferable, established state asylums at Anoka and Hastings and later on the third one at Willmar. Two of these, Anoka and Willmar, are under the supervision of Medical Superintendents Drs. Caine and Smith, that at Hastings under Superintendent Yanz who has, like the others, developed his institution to a high state of efficiency. These asylums receive only transfers from the three hospitals.

The opening of the School for Feeble-Minded at Faribault in 1885 relieved the hospitals of epileptics and feeble-minded. Under the superintendency of Dr. George Knight, Dr. Arthur C. Rogers, Mr. Guy C. Hanna and more recently Dr. J. M. Murdoch, this institution has a wide reputation for its progressiveness and for its research work still carried on by Dr. Kullman. In the last few years a hospital for epileptics has been established at Cambridge under the superintendency of Mr. Guy C. Hanna.

A hospital for criminal and dangerous insane in connection with the St. Peter hospital was opened in 1910.

As is seen, Minnesota has three state hospitals. These hospitals were built on the Kirkbride plan, the three state asylums on the colony plan.

It is not hard to realize that under the conditions surrounding our first attempt in caring for the insane, that there could be little more than custodial care with some medical attention. In the matter of restraint Minnesota was nowise behind the older states in its use, a crib bed with other restraining apparatus being in evidence. This bed, described by Aubanel of France in 1845, was first made and used in this country in the New York Lunatic Asylum, its use prompted as we are told "by a desire to avail ourselves of every improvement in the care of the insane"; the same desire which in all of us has led to our present efficiency in their care. This crib bed, it was suggested, was well adapted for use in northern climates on the supposition, I imagine, that anyone confined in it ought to be warm.

In common with many of the other institutions in the country, we have fluctuated from complete non-restraint to its use in mild

forms only in selected cases. Even Connolly, the early champion of non-restraint, did not discourage its use in milder form. Dr. Luther Bell seventy-five years ago stated that the "English non-restraint system comprised as much restraint as ever had been practiced in our institutions." We have a newspaper account of one early convert who demonstrated his enthusiasm by building a large bon-fire of all his restraining apparatus, which was accompanied by appropriate ceremonies, the beneficiaries of this act dancing around this fiery may-pole probably shouting the battle cry of freedom.

There were no trained nurses and about the only instructions the attendants received was provided by that little book of "Rules and Regulations"; one night watch for either side making the rounds at stated intervals was considered sufficient. One prominent authority states that he objected to night watches on the ward as they made too much noise, disturbing the patients. In the light of present experiences, one can but wonder at the composure of hospital officials who could rest at night under such conditions.

Following the example of Dr. Granger of the Buffalo State Hospital, who in 1883 established the first training school in a state hospital, Minnesota in 1889 opened training schools which have since been in continuous operation; at that time these were the only schools for nurses in the state. Modern therapeutics has discouraged the multiplication of drugs and most of the "old reliables" have gone by the board.

In all branches of medicine, great advancement has been made in the treatment of disease; a notable example is the malarial treatment in general paralysis which, until Von Jauregg's report in 1919, was considered hopeless. We find that some of our modern methods of treatment were anticipated many years ago. Occupational therapy has been extensively employed in the Taunton State Hospital since 1854. The wet-pack was used in England many years ago and was considered a certain form of restraint.

We have been most fortunate in having in our midst psychiatrists, who, although not connected with our state hospitals, have given them their earnest support and hearty cooperation.

While the Mayo Clinic is located in Rochester, the Rochester State Hospital is not the only state institution indebted to it for services rendered. For many years the Doctors Mayo personally attended to all surgical cases both here and at St. Peter, the work

being continued by their associates who, in every department, have cheerfully responded to all calls made upon them.

Reference to our state asylums may call to mind the controversy in 1866 over the establishment of the "Willard Asylum" for the care of the chronic insane, this association almost unanimously opposing the separation of the "curables and incurables"; but in those early days the recent cases did not have the advantages of treatment now afforded our so-called incurables.

Unless separation of these classes is provided for the result will be either the multiplication of our state hospitals, which will only increase the present unfortunate condition, or their enlargement to unwieldy proportions. In a paper presented in 1903, Dr. Charles G. Wagner stated "in every institution we possess the acute recoverable patients are overcrowded into wards with chronic cases, or assembled in close proximity to one another to their great detriment; and it is an undeniable fact that many of these patients who ought to get well . . . fail to recover simply because suitable care and surroundings cannot be given them." While of the opinion that state care is the more desirable, we have in mind some county hospitals which vie with our state institutions in the care and treatment of their patients, over whose portals Dante's inscription has no place.

In this state patients are committed by the Probate Court and by voluntary application.

Minnesota hospitals up to 1901 were governed by a Board of Trustees, since which time they have been under a Board of Control, in conjunction with a new Board of Administration and Finance, the two boards functioning in perfect harmony.

The writer having served under the administration of thirteen governors, representing different parties, in all that time can recall no act of any chief executive or his appointees that would savor of politics in the conduct of our state institutions.

DISCUSSION.

DR. ALFRED B. OLSEN (Battle Creek, Mich.).—I would like to ask one question. The doctor mentioned the time when the occupational therapy was used in Taunton in 1854. He also mentioned the wet-pack in England. Did the doctor find out how far back they began to use the wet-pack as a form of restraint for treatment of these patients?

DR. J. ALLEN JACKSON (Danville, Pa.).—I am sure we are enjoying the many hospitalities of the Minnesota group. We are particularly indebted to Dr. Kilbourne and his co-workers, and I am quite confident I voice the appreciation of the Association for this very excellent paper.

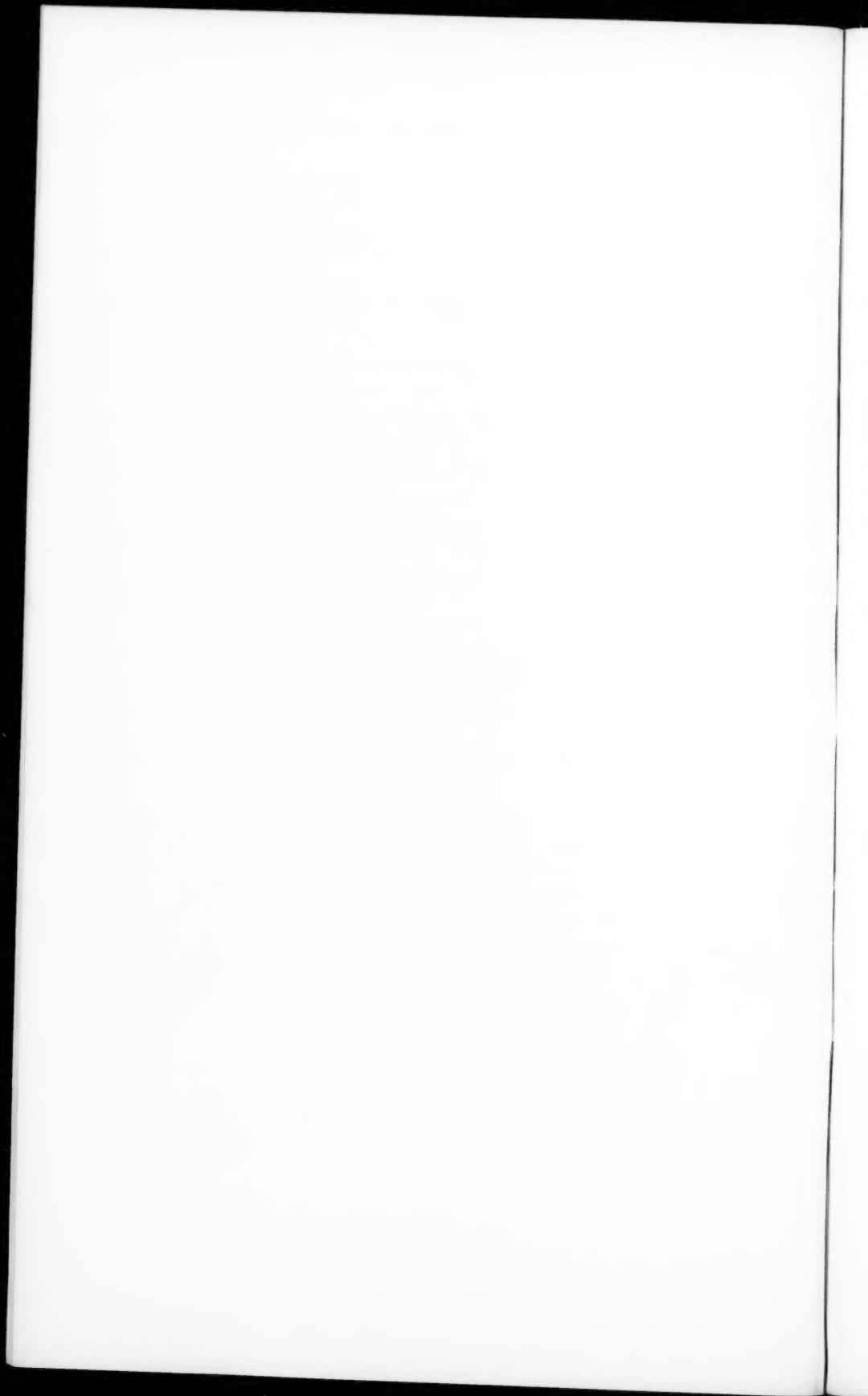
PRESIDENT MEYER.—Is there any further discussion? It is, I think, most important and valuable that we all should see to it that the historical data be well kept within the reach of those who are carrying on the work, as we go along. We therefore are very much indebted to Dr. Kilbourne for his statement, particularly for pointing out some of the channels through which the inspiration has come, the connection with Workman of Toronto, with Utica, with Pliny Earle, and so on. Those are things which to my mind are really at the very heart of the history, because it is that pedigree of persons and of group influences that explains so many things which otherwise would be lost.

I am sorry Dr. Kilbourne did not give the pedigree of the influence on his own development, which is also very interesting, if I may venture, from a little information that I have, to trace it from New York to Elgin, Ill., through heredity or family influences.

May I ask Dr. Kilbourne to close the discussion?

DR. ARTHUR F. KILBOURNE (Rochester, Minn., closing).—I thank you, Mr. President, for your very kind remarks.

In answer to the doctor's question, I have been unable to ascertain when the wet-pack was first used in England.



DEMENTIA PRÆCOX.

A TRIAL AND A RETROSPECT.

BY HENRY J. BERKLEY, M. D., D. SC., BALTIMORE, MD.

During the early part of the past year, Dr. Goldsmith, Superintendent of the Psychiatric Department of the City Hospitals, began a series of trials with combined typhoid-paratyphoid vaccine in cerebro-spinal syphilis, with results much more favorable to a stay of the disease than had been obtained from arsenical preparations or malarial inoculations. His report will appear later.

The typhoid-paratyphoid vaccinations, which were always performed intra-venously, were not attended by any unfavorable results, were readily controllable, and resulted in bed-ridden patients, who were in the last stages of the disease, leaving their beds and becoming workers in the wards. No actual cure, from the pathology of the malady, could be expected, but a return of the patient to the most ordinary duties of daily life, after, apparently, complete dementia, is a considerable gain. It is to be noted that the physical signs also largely abated.

These results were so striking that I was led to request Dr. Goldsmith, and his assistant, Dr. Klawans, to try the vaccine upon a selected few cases of the ordinary forms of the dementia præcox group, drawn from the abundant material of the psychiatric wards.

For upwards of thirty years we have endeavored to find some agent that could at least modify, or abort, the progress of dementia præcox, and bring to a stop the mental deterioration that is a necessary attendant on all its forms. It is the ever-increasing malady of modern civilization, the penalty of crowding to the cities for an existence, for which the children have to pay for the errors of the forebears.

Medical treatment of any kind has so far been without result, in staying its progress to dementia. Extracts of all the glandular bodies have been consistently tried, various drugs too numerous to mention here, open air life, and a hundred and one fancies and theories. In only two of these empirical efforts did we obtain any issue. Many cases, especially those who were catatonic or hebe-

phrenic, were made worse by continued moderate doses of thyroid gland extract—it seemed to induce a more rapid dementia. Operative measures, ablation of a portion of one lobe of the thyroid body, without disturbing the parathyroids, in the very earliest stages of catatonia, gave favorable results, lasting, so far as we were able to follow the patients, for at least two years; then they faded from sight by removal to other localities. Ligation of some of the thyroid vessels did not do so well. Unfortunately, for a continuation of this experiment, catatonic patients in the nascent stage became quite difficult to procure, and perseverance of this investigation had to be abandoned for lack of material. Under partial ablation of the gland, those patients who had further progressed in the disorder, reacted for a time, became mentally clear, and at the end of a month lapsed back to their pre-operation state.

So far as one can see, the treatment of any of the several groups of dementia præcox is in exactly the same state as it was thirty years ago; it matters not what you try, the result is the same—nothing. Meanwhile the malady is increasing in frequency, to the filling of our mental hospitals with incurable patients.

For the purposes of this typhoid vaccine trial eight subjects were chosen; four white males, two white females, and two negro men, with ages from seventeen to thirty-eight years, the last representing the longer deteriorated types. One cubic centimeter of the sterilized vaccine represented two billion germs. The initial dose was a tenth of a c. c. increased by degrees to .15 c. c. according to the reaction produced, and the vaccine was injected, intra-venously, every other day for sixteen days. It is to be noted that except in the instance of Hyman H. the rise of temperature following the intra-venous injection was less than in the luetic cases. The average in the dementia præcox for the eight cases was 102.46° while in fifty cerebro-spinal cases it was 103.50° .

The following is a summary by Dr. Klawans of the results of the injections:

1. James A. R., 38 years; male; negro; deteriorated; mixed type; average temp. after injections, 102.6° ; moderate chills; temp. not sustained. No result.

2. Joseph C., 20 years; male; negro; early hebephrenia; average temp. 103.4° ; moderate chills; temp. usually sustained and lasting to the next inoculation; chills occasionally repeated. No result.

3. Hyman H., 21 years; male; white; early but rapidly deteriorating catatonia; average temp. 104.6° ; rather severe chills. Disease, apparently aggravated.

4. Peter L., 24 years; male; white; deteriorated; paranoid reaction; average temp. 101.6° ; only occasional chills; temp. not sustained; Patient rather worse during treatment and afterwards.

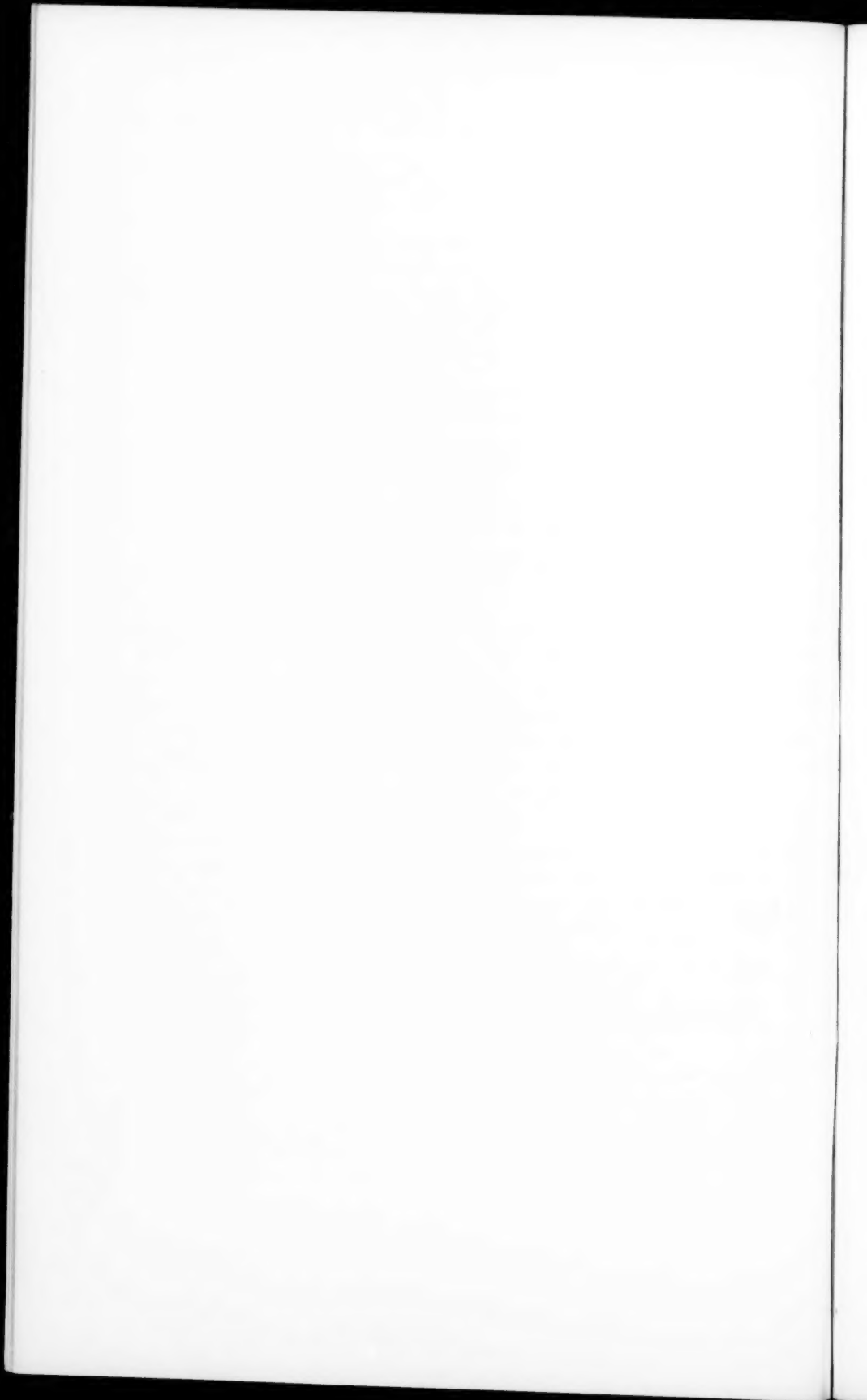
5. Samuel S., 32 years; male; white; early paranoid form; average temp. 100.4° ; varying considerably after each injection; chills mild, followed by subnormal temp. Patient seemed somewhat improved at the end of the treatment, but nothing definite.

6. Maurice B., 18 years; male; white; early catatonia; average temp. 103.4° ; chills usually severe; reaction severe and sustained. Patient rather improved, but not definitely.

7. Eleanor M., 19 years; female; white; deteriorated catatonia; average temp. 101.7° ; chills quite severe; temp. not sustained. Unimproved.

8. Mary F., 17 years; female, white; deteriorated hebephrenia; average temp. 101.8° ; chills irregular, some severe some mild. No improvement.

Thus ended unfavorably another experiment.



Proceedings of Societies

FIRST COLLOQUIUM ON PERSONALITY INVESTIGATION.

HELD UNDER THE AUSPICES OF THE AMERICAN
PSYCHIATRIC ASSOCIATION.

COMMITTEE ON RELATIONS WITH THE SOCIAL SCIENCES.

SATURDAY MORNING SESSION.

DECEMBER 1, 1928.

The First Colloquium on Personality Investigation, held under the auspices of the American Psychiatric Association, was called to order at eleven o'clock at the Faculty Club, Columbia University, New York City, Dr. William A. White presiding.

CHAIRMAN WHITE.—Gentlemen, the meeting will come to order.

You know, I suppose, in a general way why we are here. This is more or less of an informal *conversazione* which has been called by the American Psychiatric Association through the generosity of the Laura Spelman Rockefeller Memorial, of various representatives of the Social Sciences, to meet with the psychiatrists and discuss questions of overlapping and joint interest.

Speaking for the psychiatrists and for myself, I should say that the psychiatrist approaches a group of this sort in a very humble spirit, composed as it is of learned representatives of the various Social Sciences, but fortified by the profound conviction that has been forced upon us for many years, that psychiatry, with the material that it has to deal with, is dealing with conditions that are essentially different from the material which general medicine deals with. The somatic diseases are to all intents and purposes individual affairs. An abscess of the liver is an abscess of John Smith's liver, fundamentally; it has very little social significance, although of course many of the diseases do have directly or more or less indirectly social significance. The contagious diseases of course fundamentally come to our mind as having acute social significance—tuberculosis, chronic cardiopathies which disable a large number of men at the height of their productive capacity have social significance—but the mental disorders are peculiar in this respect because no one can understand their symptomatology without being projected at once more or less deeply into the social field.

As individuals, we are born into a certain cultural milieu, and, to use the language of the psychoanalysts, these cultural standards are introjected by the individual and the subsequent symptomatology of the psychosis is very largely conditioned by these cultural standards as they are represented in

the psychology of the individual. The melancholiac, for instance, who thinks that he has committed some terrible sin, is depressed because that sin is a sin which offends social standards which he has made his own.

It is exceedingly difficult, for that matter quite impossible now, to separate the purely individual experiences and the cultural experiences and what may be considered as taken over from the race experiences by virtue of something akin to heredity, all that various tangled network and its significance and where the content comes from—whether from the individual or from the cultural milieu—is more or less a matter of controversy. So that we feel very much with reference to psychiatric problems as we have felt for a long time with reference to the problems of general medicine. We have been trying to get the internist to see that he had psychiatric problems and to help us with what we knew to be somatic problems. We have felt that the field of the internist and the psychiatrist overlapped very widely and in very important regions. And so now we feel similarly with regard to the field of the Social Sciences, that here again is an overlap. It is the old problem of the individual parts of a large machine and the large machine as a whole, and the significance of these two factors.

Mental disease, of course, has other social significances than those that I have indicated. It has enormous economic significance, if for no other reason than because of the size of the budgets of the various states of the Union that have to deal with the problem concretely by taking care of those who are crippled because of mental disease and in public institutions. It would be easy to show what the value of the property invested in these institutions is. The United States Census reports will give that and will show the number of people who are employed and taken care of as mentally ill people, but there are other aspects of the problem that are probably of greater economic significance. The loss to the country of the efficiency of people who are impaired right at the critical period of their lives, I think it would not be difficult to demonstrate that the loss financially to the country is hundreds of millions of dollars per annum, and that this loss is increasing rapidly.

Now, if we were going to enter into a large commercial enterprise, if we were going to build factories and try to distribute a manufactured product, we would naturally call into consultation all sorts of experts of various kinds and descriptions. We would have to have architects and builders to build our factories; we would have to have accountants and sales experts and advertising agents and administrators; chemists, machinists, and so forth, a whole army of people. Yet with many of our very important social experiments such as, for instance, an experiment in criminology, the running of a large prison with 3000 men in it—the way that is done at the present day and age is that the politician speaks to the Governor and he appoints John Smith because he has been delivering the votes down in his district very systematically for a certain number of years, and this very important social experiment is left to this type of man without any assistance at all. And so we might go over the ground and see here and there and over and over again these very important social enterprises being

bungled and botched, without any appreciation of their significance, either medical, sociological or otherwise.

So the idea of this conference, as I take it, is to get together and see what all of us, with our various interests, can contribute in the most practical and useful way to these problems of great individual and social significance and importance. Take, for example, the single problem of a mental illness: I teach my students that we have at least four levels upon which we have to consider that problem. First, what I call the laboratory level, the result of the blood chemistry tests, the cerebrospinal fluid examinations, and such things as that; second, we have the neurological level, the disturbances in the central nervous system; third, the psychological level, the experiences as registered in the psyche; and then fourth, we have the social level, which I have already intimated the nature of. Now, if we are going to understand any of these problems, we have got to group all of the specialists in all of these various approaches together and get them to appreciate each other's field and be able either to talk a common language or to understand each other's language. So I take it that we need the common and illuminated viewpoint not only from the sociologists but from the ethnologists, the anthropologists, the statisticians, and so forth, as well as the psychiatrists, and I think therefore that in this colloquium, which I believe should be in the main a more or less spontaneous affair, we should expect from each of you an expression of opinion, not as to what the other fellow ought to do but as to what you can do in the way of contributing something to the solution of these problems, not perhaps by way of joining issues with somebody else in a different field, but by way at least of becoming from our point of view psychiatrically-minded, registering our behavior in a common terminology that was mutually understandable and tackling this field which I call the "individual-society level," this 'tween state between the individual and society, with an understanding of some of its possibilities.

That is already being done, as you know as well as I do, and we are developing, perhaps without a full realization of it, something that is beginning to represent what Dr. Partridge called attention to the other evening, a beginning social pathology, and I believe that these manifestations of social pathology, as well as the social manifestations generally, would be better understood if the mechanisms which the psychiatrist deals with were better understood.

The psychiatrist feels—and I suppose you do also in that matter—that the more we see of disordered mechanisms, the more fully we realize that the mentally ill individual and the rest of us are not fundamentally different. As the psychoanalysts have been emphasizing for a number of years, a person doesn't become mentally ill because he has an Oedipus complex; the Oedipus complex is only a way of expressing energy that is bound in a certain particular pattern, and he becomes ill because he can't handle that energy efficiently. It is what he does with it that makes him ill; it is his incapacity for dealing with it, and his incapacity is born of several factors, in which the cultural factor undoubtedly plays its very considerable part.

And so, with a conception of the breadth of the whole problem, of the importance of all these various points of view, and of the essential normality, we will say, of mental mechanisms, the discarding of the idea of disease as something extraneous and abnormal, we can approach these problems with some possibility of getting somewhere, I think, in a common understanding of them.

Then again, if we want to modify any problem that has individual or social ramifications, we have to operate through an individual somewhere in the scheme, or through a group of individuals, and so again, no matter which way we turn, we come to the importance, it seems to me, of the psychiatric point of view only because the psychiatric point of view is a point of view that is obtained by, as it were, an experiment of nature which lays bare certain mechanisms which would otherwise be covered up in such a way as to be more or less invisible. We have to learn to dissect the human body in order to find its anatomy. We can't dissect the human mind very well, although we have a technique that pretends to do that to some extent, but at least we can observe what is going on under the influence of the natural experiments of disease.

I hope, therefore, that the spirit of the meeting will be one of attempting to give your viewpoints, each of you, as you speak, more or less as I have tried to do, in simple language, because there are so many viewpoints represented that if we dropped into our respective technical jargons, we would run the risk of being misunderstood by somebody. Give your various points of view clearly and express, as I stated before, what part you think your particular specialty can play in illuminating this very wide field.

The discussion will be informal. I will call upon individuals, perhaps, if there appears to be somewhat of a discussion lag upon your several parts. Otherwise we will let the matter shape itself more or less, trusting that each person will speak in such a way with respect at least to other fields than his own, as to be provocative and stimulating, if not (to use a more harsh term) irritating, perhaps, to the other gentlemen present, so as to call forth by such process of stimulation, expressions of opinion from them.

I know that Mr. Thomas is prepared to speak upon the subject of "Proposals for the Joint Application of Technique as between Psychiatry and the Social Sciences," and inasmuch as that is a topic very much in order for the beginning of this discussion, I believe it would be a very good thing to have Mr. Thomas lead off, if that is agreeable to him.

MR. WILLIAM I. THOMAS.—Mr. Chairman and Gentlemen: I will say that this was not a voluntary matter at all, that I was to lead off. I was very strongly urged and I very strongly resisted it.

It is evident that all the sciences dealing with man have their attention at present on behavior problems and are more or less concerned with data which may lead to the prediction and ultimate control of behavior manifestations. This is true in the biological, anthropological, psychological, educational and social science fields.

There is also a common standpoint involved in this attitude, namely, that whatever may be the rôle of constitutional and hereditary factors in the determination of the personality and the behavior reactions, the situations in which the subject finds himself, the life experiences, are factors of great and usually of determining weight.

This appears to be also at present the dominant standpoint in psychiatry. If, as Sullivan has expressed it, schizophrenia is considered as "an evolution of the life process in which some certain few motivations assume extraordinary importance," the consequent maladjustment is evidently one of habit-formation, experience, situation. It is interesting to find also in the literature of psychiatry that even in encephalitis, where the organic structure is obviously damaged, the tendency is to seek the cause of the consequent disorders in the life experience and habit system of the subject and, if I understand the matter, to regard the organic injury as a precipitating incident. The non-specificity of mental disease, as indicated by Strecker and Rosanoff, among others, is an impressive emphasis of the situational standpoint.

In this connection also the line between the normal and the abnormal tends to disappear so far as techniques are involved, and the abnormal manifestations are to be viewed merely from the standpoint of their undesirable implications.

Occupying, therefore, the same standpoint and working on the same problems from different angles, conditions seem ripe for the formulation of schemes of collaboration and interchange between the sciences interested in behavior, and I shall indicate as far as I am able what might be some of the concrete procedures in bringing this about. Speaking as a sociologist, it may be that I shall express to the psychiatrists what I should wish to see them do rather than what they would wish to undertake.

To illustrate the procedures which have been followed up to the present from the standpoint of situation, I may refer to some examples. Freeman and his associates in Chicago, in order to test the effect of situation on intelligence, placed 600 children in foster homes and observed the results of the changed situations. Comparisons were made between results on intelligence tests which had been given before adoption, in the case of one group, and the results after they had been in the foster home a number of years. Another comparison was made between children of the same family who had been placed in different homes, the home being rated on a scheme which took into consideration the material environment, evidence of culture, occupation of foster father, education and social activity of foster parents. Both of these comparisons had held heredity constant, letting the situation vary. A third comparison held environment constant, letting heredity vary; that is, concerning itself with a comparison of the intelligence of the own children of the foster parents and of the foster children. The results, stated in a word, show that when two unrelated children are reared in the same home, differences in their intelligences tend to decrease, and that residence in different homes tends to make siblings differ from one another in intelligence. This study is limited to the question of intelligence as measured by

intelligence tests, but it is obvious that a fundamental study of behavior and of psychoneurotic behavior could be made by the same method.

Healy and Bronner and their associates in Boston have, in fact, just completed a study of the effect of foster homes on the behavior of a large series of juvenile delinquents containing a rather heavy proportion of psychopaths. This experiment showed (1) that it was possible to treat children without mental deficiency or psychopathic traits with a high degree of success in these situations (90 per cent); (2) that a certain period of time was necessary for retraining, and that return to the old home and community was disastrous unless there had been a change for the better there in the meantime; (3) that a transfer of the child from family to family, until a suitable situation was found, was often advisable; and (4) that the method was not successful with psychopathic children. At present Healy and Bronner are planning a comparative study of juvenile delinquents, including the mentally deficient and psychopathic in foster homes and institutions of various types.

I may also refer to the interesting work of Esther Richards in moving psychopathic children from one situation to another until they make a successful adjustment, of the experiments of Sullivan at the Sheppard and Enoch Pratt Hospital, and of Ambuhl at the Children's Village, in forming associations of psychopaths among themselves, and of Krasnogorski and other associates of Pavlov in the production of neuroses in dogs and children by making the discrimination tests too difficult and delaying the reaction.

The Chicago sociologists and their derivatives have used the situational approach in two ways. They have divided the city into regions and followed the behavior manifestations along radii from the center toward the suburbs. Working from the standpoint of the boy-delinquency rate and taking the boy population between 11 and 17 years, they found 443 delinquents per 1000 in the first mile unit, 58 in the second mile, 27 in the third mile, 15 in the fourth mile, 4 in the fifth mile, and none in either the sixth or seventh mile. In the first two $\frac{1}{2}$ -mile units of the central business district, over half the boys were brought into the juvenile court in an 18 months' period, whereas in other regions none were. That raises, however, the question of what are the experiences within these regions, and they therefore have interested themselves in the development of life histories, personality documents and records with reference to the concrete trains of experience which in these particular regions lead to these results. Among the disclosures made up to the present by the more particular exploration of these regions is that gang life is strongly developed in the regions of a high delinquency rate and that in 90 per cent of the cases of stealing by boys brought before the Chicago juvenile court two or more boys participated. A similar study of the regional incidence of psychopathic traits has not been undertaken and would evidently result in something different, but I believe I can say that the sociologists would participate in such a study under the guidance of psychiatrists.

These random items I have presented as representative of what I am calling a situational approach. With reference to the particular alliances which the psychiatrists may wish to undertake or emphasize, it is my impression that the most profitable immediate working connection and the one most ready to hand is with the Child Research Institutes. I have in mind particularly the work of these Institutes in Minneapolis, Iowa City, Toronto and Columbia University. These Institutes have very favorable set-ups for cooperation with psychiatry. They control a number of young children. They study behavior in terms of behavior manifestations, not in terms of "instincts," body-chemistry or internal mechanisms. They are in the main sociological rather than psychological. They realize that behavior study is a long time job and are going about it in this way.

In Minneapolis, for example, two studies of dominance and subordination have been under way, one controlled and the other observational. A number of children were paired in all possible combinations successively and placed in a room together with an interesting toy. The experimenter retired but observed the children behind a screen and made a record for each child in terms of his behavior as directed towards securing the toy—whether he screamed, pleaded, bargained, threatened, pulled it away deliberately, slapped, pinched or pulled the other child, or relinquished the toy passively; in terms of the type of domination of the successful child, after the outcome of the conflict; *i. e.*, whether he played with the toy alone, controlled it but let the other child participate, or controlled it but let the other child have his turn or share it, and in terms of the unsuccessful child's reactions; in terms of the subsequent behavior of both children—whether the dominant child relinquished the toy, and, if so, whether he still directed the activity, whether either child made a suggestion, and whether it was accepted or rejected by the other child. In two behavior charts it is shown that one of these children used pleading as behavior directed towards securing the toy over two hundred times, the other child not ten times, but the latter child used commanding about as often as the former used pleading. When we consider the great number of combinations from which these computations came, the consistency of behavior is amazing. The pleading child pleaded consistently, whatever other child he happened to be with; the commanding child commanded all other children.

In the observational experiment, which consisted in recording the participation in activity during the play period of each child with all other children, taking them in rotation, it was found, for instance, that one child talked 90 per cent of the time; another not at all. It was found also that a given child might be leading or dominating in 95 per cent of the play situations, whereas another child was in the leading position only 5 per cent of the time; that is, within a constant period one child was getting twenty times as much practice in meeting social situations in a given way as a second child.

In the Research Institute at Columbia the main approach has been somewhat different. Behavior has been observed not from the standpoint of psychological categories—dominance-subordination, introversion-extraver-

sion, etc.—but by observation and recording of the reactions of the children to the multiform stimuli of the environment appealing to their attention. It appears, for example, that there are children who select objects or materials for attention, others who select persons, and others who select themselves. One of the objectives is the study of the modifiability of these attitudes through experience and maturation. All activities of the child are recorded elaborately and objectively, without reference to what may appear eventually to be their significance, but methodologically it has been found necessary to observe these activities seriatim; for example, all physical contacts with other children for a given period and all language content for another given period. The language activity of the child for a period of twelve hours, or four school days, may fill as much as 120 typewritten pages.

I have elaborated this point partly because representatives of this work are not here and partly because I think it is a very important place, perhaps the most important, for the psychiatrist to tie in.

I am sure you will agree that there are in psychiatry many obscure and perplexing points, questions of idiotropic and syntropic, schizoid and cycloid dispositions, the causation and the age-level of the possible onset of schizophrenia, ambivalence, etc., the psychoanalytic theories and claims concerning pan-sexualism, anal-eroticism, the Oedipus, Electra, castration and inferiority complexes, the birth trauma and uterine regression, the trafficking of the Ego with the Id, etc., which would be greatly illuminated if they could be incorporated in the objective, controlled and comparative set-ups of these Behavior Research Institutes. I think I speak for my associates when I say that we realize that we cannot solve our problems without the aid of psychiatry, and we would welcome a rapprochement between yourselves and these Child Research organizations. They are at present concerned with the development of their techniques and you are, I know, concerned with the development of yours. In their set-ups they could include your problems, and in your procedure you could recognize theirs.

Another important contact for the psychiatrists would be with the anthropologists and sociologists, with reference to the incidence and character of mental disturbance among the races and nationalities. The anthropologists are planning at present studies of cultural areas, a section of the sociologists is specializing in human ecology and another section is already experienced in the technique of the smaller regional surveys. The literature on the psychopathology of races is extremely scanty and I have in mind the problem of the individual behavior reactions as they present themselves in different great social frameworks and cultural configurations, with their varying stresses on social values. There are anthropologists present who will doubtless have opinions on this topic. Some of these questions bear upon some of the points I have just enumerated. For example, the feeling of guilt among these different groups must vary enormously, whereas among the Arunta there is no recognition of the relation of children to copulation, and a Blacksnake woman visiting a Kangaroo group and feeling a child move within her would return home, and when the child was born would return it to the group where she was visiting and on whose territory one of

the Alcheringa ancestors entered her person. I don't know how much that would affect these parent-child relations as represented in psychoanalysis, but it certainly is a very different situation with reference, say, to incest, or if a Witchety Grub man does not eat that animal but takes a small portion of it, so to speak, sacramentally, in order to bring himself into rapport with his totem and at the same time has an understanding with an Emu man that the Emu man shall kill the animal and eat him completely, you certainly have opportunities for mental conflict. The question of homosexuality and its racial distribution and causation, and so forth, taken by the anthropologists and the psychiatrists in a joint manner, I think represents what I have in mind.

Two other highly important questions are the relation of crime to psychopathology and of psychopathology to the occupations. These questions offer an excellent opportunity for cooperative situational studies. It appears, for example, that in a given critical situation one person may readjust on a higher level of efficiency, another may commit a crime and another may go to a hospital for the insane. And with reference to the occupations, it is important to know whether there is a high incidence of the psychoneuroses in given occupations, what neuroses in what occupations, and what experiential or constitutional preadaptations are involved. I cannot expand upon these points here, but hope they will come up in the discussion, and also the relation of psychopathology to the law and to legal procedure, and to the moral code. It is unnecessary and not suitable that I should attempt to expand upon these points, as they could be better represented by those whom I see before me.

I will mention two further items which seem to be of interest to everybody. I have referred to record making and life histories. The juvenile court and child guidance clinics, voluntary organizations like the White-Williams Foundation, and the sociologists have prepared valuable but inadequate materials. It is true that life-records are inferior factually to the records of the Child Research Institutes. They cannot represent factual reality adequately; they contain much phantasying, but they nevertheless represent effective reality. If, for example, in the field of psychopathology, a man with a delusion of persecution shoots men on the street who have the unfortunate habit of talking to themselves, imagining they are calling him abominable names, the man's delusion is effective reality. Those of us who are particularly interested in this matter would welcome the organization of a group of persons to work on the techniques of record making, with special reference to getting your psychopathic records to the front. I understand you have among you very important materials, but the reading, for example, of McCurdy's volume, where he leans so heavily on the good but old cases of Hoch, is rather disappointing. It would be advisable also to organize on some basis for the systematic publication of behavior records, perhaps in a series of behavior monographs.

Another point is the character of our journals, and their lack of critical and factual materials. I am sure the sociological journals suffer from a metaphysical-philosophical holdover and contain too much speculative essay

writing. It is my impression also that some of your journals contain a considerable proportion of irresponsible, fantastic and incredible statements.

It has been suggested that I say something of the biochemical, physiological, morphological type of approach as related to this conference, and I hesitate to do this not only because of lack of competence and lack of time, but because I feel that conditions are riper for profitable cooperative enterprises on the basis of a sociological rather than a biological approach, and I should regret to see the attention and discussion of this brief conference divided between the two. I will say that I believe 100 per cent of those present would agree that behavior reactions are conditioned by both the social environment and by what Claude Bernard has called the inner environment. I have the greatest respect for workers like Scammon, Baldwin, Bardeen, Prescott, Boas and others who are working without prepossessions on the problems of population norms as related to the growth and differentiation of the human body and its various organs, on indices of anatomical age, etc., and other work of this character, but I am very skeptical of all procedures which weight and make responsible for deviate behavior any single factor or limited set of factors. We have a long history of these claims—Lombroso's anatomically stigmatized criminal type, destroyed by Goring; the theory of mental deficiency as almost the exclusive cause of crime, destroyed by many hands; the more recent psychopathic personality as numerically dominant in crime, destroyed by Healy, Slawson and others; Cotton's claims of focal infection as the cause of mental disease, destroyed by Kopeloff and Kirby. Just now the Jaenschies are at the front with claims of the eidetic disposition and crumpled as against upright capillaries as concomitants of feeble-mindedness and the psychoneuroses, and are rating races and nationalities on this basis. Some of the endocrinologists are grossly overweighting their material and giving it a criminalistic as well as a psychopathological bearing; anthropometrists have constructed disease races, as against anthropological races, making many and minute measurements and using few of them in their conclusions.

Certainly some of these claims contain values (and I am especially impressed with the general position of Kretschmer, which may be a weakness on my part), but we do not know what they are. In addition to a perhaps unconscious selection (through which, according to William James, it would be possible to show that all poets are blue-eyed and born on a Thursday), a main defect of all these overweighted theories is that no control groups are used whereby it would be possible to determine what proportion of given traits in the subjects handled occur in the general population. It is assumed that the general population is normal, or rather, ideal, and that deviations from the experimenter's conception of the ideal are abnormal. It is, for instance, quite useless at the present time to make elaborate measurements of any group of behavior deviates because these same measurements have not been widely applied to the general population. We cannot tell to what extent physical deviations are associated with behavior deviations until we have some physical standard from which these deviations may be measured, or until we know to what extent the ideal

physical status corresponds to the normal or average. It is quite useless, for instance, to subject a group of criminals or psychopaths to an elaborate series of physical measurements because so little is known about the "normal" development of non-criminal groups of the same age, sex, nationality, etc. Association of physical defect with crime and insanity cannot be determined until the amount of physical defect in non-criminals is known. "Normal" physical development and growth must be objectively determined before we can trace out and measure the degree of association of various physical states with various behavior manifestations. It may be said to the merit of Scammon and workers of that type that they are occupied with the determination of at least the physical norms.

In this connection, therefore, I should say that the most desirable affiliations for the psychiatrists would be with the statisticians and psychologists. It is true that the psychiatrists and physiologists have sometimes been betrayed by the psychologists. Conscientious men like Starr and Rich have studied the chemistry of the blood and saliva by the most painstaking and accurate techniques with reference to the psychoneuroses and have then correlated their accurate measurements with the very unscientific results of a personality rating scheme proposed by the psychologists whereby teachers or other observers make reports on the behavior tendencies of the subjects. It is also true that statisticians are responsible for some of the items I have just criticized, but there are statisticians who know the limitations and applications of their art. The situation here is similar to the one above, where I suggested an interaction between the psychiatrists and the Child Research Institutes, with a view to setting and regulating one another's problems and procedures.

My experience with conferences leads me to suggest also that, whatever shape your projects may assume, their consummation would be greatly facilitated by the designation of a liaison person whose sole function would be visitation, exploration, organization. Perhaps you may be able to divert Dr. Sullivan from a brilliant psychiatric career and convert him into this liaison person.

CHAIRMAN WHITE.—Now will the spontaneity that I suggested commence to operate?

Dr. Thomas has thrown out a number of challenges to various groups and individuals. Let us hear from them. Of course the Chair can call upon people but he would prefer very much to have people nominate themselves, because in that way I think we will get a much freer expression.

MR. EDWARD SAPIR.—I was very much interested in Professor Thomas' proposal that we take up the question of behavior monographs. It has always seemed to me that that was one of the prime needs of all personality studies. I, myself, am only an amateur and dabbler in the question of personality but I have always wished that there were some place where one could go in order to get acquainted with life personality. I should like to see someone found a series of behavior monographs in which the cases, after revealing themselves as far as possible, are minutely discussed by a number of people interested in personality from different points of view,

that we would all get acquainted more or less with a few dozen typical persons, as it were, in our community, and be able to talk of Case A, B or C, and be familiar with the interpretations of the various reactions of those cases. It seems to me if we could have a series of monographs of behavior of personalities and a careful analysis of what seems to be relevant in these various cases, we might discover how widely different could be our conception of what might be a difference in personality.

MR. FREDERIC L. WELLS.—What sorts of persons would be the subjects of the behavior monographs which are under consideration here, and how would the factual material be gathered? It is possible to gather material of this kind in a very close way through psychological settings. What Dr. Sapir has in mind is normal individuals. How, under the conditions of our present culture, is material of the sort he has in mind to be gathered?

MR. SAPIR.—I can't say that I had in mind entirely normal personalities. I had in mind both normal and abnormal. There are various methods of obtaining case histories. Dr. Kimball Young and Dr. Shaw can probably illuminate us, and Dr. Thomas himself. I am not at all clear in my own mind as to in what form case histories of this kind should be presented. It might be better to experiment with different kinds of presentations and subject those to criticisms, as well as the analyses of them, but it seems to me that my own personal difficulty in considering the question of personality was that I was never quite sure whether my private definition of "personality" corresponds to the other person's definition of "personality." I think we can't get very far by discussing these concepts of ours in the abstract, but that we must work through, experimentally, the usual definitions and concepts via the actual handling of the material.

We have to be, as it were, driven to the wall to accept fairly elaborate working patterns of personality from the case material itself, and that is a very elaborate but I think decidedly worth while idea. I would like to see some one develop techniques for presenting and collecting cases, both normal and abnormal.

CHAIRMAN WHITE.—Is there some further comment on this, or will anyone give his point of view on some other aspect of the subject?

MR. WILLIAM HEALY.—I have no particular desire to set forth here my own notions or to dwell upon the material and projects that engage the attention of my particular group of workers. But since Mr. Thomas has spoken of some of these, you may be somewhat prepared to be mildly interested.

Perhaps I may be allowed to begin by lightly touching on a couple of points that have seemed to me to be important. First, it is becoming more and more clear that in studying human personality validities must be established by keeping away as far as possible from institutional material. Not so long ago the psychologist or psychiatrist who was interested in abnormal personalities or in the treatment of conduct problems found that the mass of information handed to him, especially in text books, was obtained from the experiences of those who were working with individuals committed to institutions. This was peculiarly true in psychiatry and led

to an over-evaluation of extreme pathological states and a lack of knowledge concerning the less marked deviations from the norm. It has taken time and courage to work away from this standpoint, and in the meantime the understanding of the norm, that is so largely the aim of science, has been hindered. The more helpful pictures and understanding of human personality variations is only gradually developing as we get farther away from the older data and classifications.

Second, the idea that there are groups and types of individuals whose behavior warrants them in being set off by themselves, clearly marked as personality types, is, I think we all of us see, a matter to be strongly combatted. Recently I deemed the only excuse for contributing a section on delinquency and crime to a forthcoming work by Cowdrey and some of his fellow biologists on the biological problems of the day, my only excuse for going into the project at all, was to point out the following: that if one were looking for the definition of a biological type that could be called criminal, then I must stand firmly with the increasing number of those students of delinquents who feel convinced that what is called delinquency and crime does not represent behavior which at all necessarily sets apart offenders as biologically distinguishable from non-offenders. The delinquent or the criminal is merely the registered or caught offender. And if we are setting up anti-social behavior as a criterion for differentiating one group of individuals from another, then, as an Italian writer emphasized some years ago, we must take into account many individuals who do not appear in court. Indeed, as he pointed out, not a few individuals might be found who, though not misbehaving in ways proscribed by the law, perpetrate misconduct that is essentially more heinous and more dangerous for society than most part of that for which offenders are incarcerated. Plenty of examples might be given, but we need only mention the individual who within his own family life behaves in a manner deeply inimical to the happiness and moral and mental welfare of others. Nothing is fundamentally more anti-social.

Even with regard to listed offenses, court cases do not represent the whole group of those who misbehave. In our own material may be noted, as referred to us by families or schools, instances of young people whose behavior shows qualitatively and quantitatively greater significance than almost any of the cases which we see from juvenile courts. We have had two instances last week of individuals with careers which long since would have sent them to the reformatory except for their social position and certain enlisted sympathies that led to the avoidance of police and court action. So if one sets about the study of personalities whose peculiarities consist in behavior deviations and takes the highly selected cases that are available in any institution or court clinic, one is very far from having the material that makes it safe to draw conclusions about the relationship of personality to misconduct.

With such considerations in mind it becomes altogether clear that the portrayal of the causes in human nature of tendencies towards anti-social conduct, one artificially differentiated variety of which is called crime, must be undertaken upon a much larger canvass than that allowed for by police

and court material, if the true perspectives and backgrounds of anti-social conduct are to be shown. And this all serves by way of illustration for the fact that the selection of groups for the study of possible types of personalities is in itself a matter for the deepest scientific consideration.

Dr. Thomas spoke of some work that we are much concerned with. Our engaging upon it was based upon very definite findings in studying the outcomes in cases of behavior problems where the individual was placed in a more or less controlled environment, namely, in good foster homes under directed treatment. We have found a tremendous difference in the careers of individuals who have been differentiated according to personality characteristics, at first with loose diagnoses, normal or abnormal. For the last two or three years we have been employed in an attempt to differentiate certain sub-groups among those designated as abnormal, and have found some very interesting facts concerning the continuance of delinquent careers as correlated with these group diagnoses.

It should be noted at once that the diagnosis was not made and cannot be made by the fact or by the nature of any anti-social conduct. There we quickly tread upon the heels of the law which so discriminates individuals according to offenses committed.

We have found that you might take practically anything else you please with regard to a young offender, you might take the type of his offense, or his heredity, or the length of time he has been delinquent, and you will find nothing that, when he is placed in a better home environment and given personal help, will prevent him from doing well. As a matter of fact, some of the worst delinquents, with some of the worst backgrounds we have ever seen, have been handled by foster home treatment very successfully. On the other hand, those who show certain types of personality make-up, though they are placed in a better environment, and even though they receive a proportionately greater amount of personal and psychiatric help, do extremely poorly. A series of 355 well studied cases showed not more than 45 to 50 per cent of those with personality abnormalities (non-psychotic) doing well as compared to 95 per cent of those not showing such peculiarities.

This has led us to feel the necessity for this research which a group of us has been engaged in with statistical procedure and case study methods.

What does one mean by abnormal personality? A ripple of knowing laughter spread over his intelligent audience the other day when a well-known speaker acknowledged that he did not know what he was talking about when he spoke of the much-used term, psychopathic personality, and yet psychiatrists and psychologists are constantly handing out to judges and social workers statements embodying this phrase.

That there is an ill-defined group of individuals, very difficult to succeed with in family life or in other social relationships, a group that is not to be classified under the head of any mental disease, is well recognized everywhere. That there is a chaotic state of affairs concerning the understanding of the nature of these individuals is witnessed to by the fact that they are spoken of in very different terms in different countries. Here in America

we utilize the term psychopathic personality without defining it, without attempting to subdivide into more understandable groups those who are spoken of under this designation. The certain necessity for such subdividing forms the center of our problem.

I shall not take up your time in describing the details of the methods used, but in general I might say that we have gone through some five thousand case records and dug out all those who could be considered to be abnormal personalities, not falling into the psychotic and psychoneurotic and defective classifications. We have taken the characteristics attributed to the individual by parents, teachers, and other observers, as well as those which were noted by ourselves. This has led to an accumulation of a large number of adjectives denoting that the individual was this, that, and the other thing. These descriptive terms have been enumerated and grouped and correlated, with the finding that they fall into certain categories and correlations in highly interesting fashion. The descriptive adjectives once accumulated, we proceeded to make groupings with much consideration of the significance of the terms. One of the groups of terms centered about the fact of instability, another egocentrism. Instability and egocentrism turned out to be correlated in these group findings 100 per cent for one class of individuals, that is to say, they were all egocentric and they were all unstable. The follow-up stories of this category of individuals showed entirely different outcomes under treatment than those of another group, the descriptive terms of which always included the fact of inadequacy. Yet both of these types of individuals have been heretofore loosely denominated psychopathic personalities. Then there is still another group that we have yet to name, showing merely odd or peculiar personality characteristics, perhaps peculiar because they are extreme in degree and so abnormal, and these, too, show quite a different range of outcomes from those of the first especially unstable group.

The study is turning out to be worth much, not only from the standpoint of offering better definitions, but also because the prognosis is made more determinable in this way.

We should much like to go further with this question of the study of personality characteristics and take groups, also normal and abnormal, that have not been thus specially treated by foster home care, namely, those who have been sent to correctional and other institutions, and those who have been merely left at home to work out their own destinies.

The study of personality changes following encephalitis lethargica may prove to have great value. We see here the lid lifted, as it were, from the impulses; the individual acts with great immediacy, without normal inhibitions. There is the possibility of getting at a better understanding of both inhibitions and impulses in this disordered state, which frequently amounts to nothing more than the exhibition of personality peculiarities. These cases suggest matters to which little thought has been given heretofore, namely, the possibility of there being an underlying structural basis for personality characteristics. The extent to which encephalitis cases exist is shown in some places by the fact that Dr. Shrubsall, physician to the

London County Council Schools, tells me they have had one school through which five hundred cases of encephalitis with personality deviations have passed. Unfortunately, the poor therapeutic results observed there are paralleled in Switzerland, and in the comparatively small number of cases seen in this country. A Filipino psychiatrist, recently studying with us, says that exactly the same sort of personality changes are observed in the many encephalitis cases found in the Philippine Islands.

It comes out clearly from all this that our first problem is to make better definitions and classifications; otherwise our discussion of personality is upon a very weak foundation.

But in all this research in the field of human personality we are very far from being inclined to throw overboard the factors of early experiences and environment, particularly family settings, as bearing upon the development of personality. As time goes on, we in our group are becoming more and more impressed with the importance of understanding the individual in terms of environmental contacts and pressures, as well as through the study of urges, impulses, repressions, compensatory outlets. To this end there should go on careful surveys of neighborhood and family situations, particularly to demonstrate the fact, and possibly the causes, of individuals in much the same environmental situation turning out very differently from the standpoint of personality development and conduct manifestations. Just as we find tremendous changes coming over the individual through foster home treatment, so it may be that if parents were educated enough to do something about their own attitudes, or if they had force enough to alter the situation, it is possible that personality and conduct modifications might ensue in the home environment.

It is decidedly important to note that when in London some fifteen years ago a law was passed that parents should be held accountable for truancy (the German method), there immediately ensued an immense and continuing betterment in school attendance. One feels that since the crime situation is so largely built upon the basis of juvenile delinquency, even our great national curse could be mastered if the courts had more intelligence, skill, and power in dealing with family situations that are responsible for the production of personality trends that are the forerunners of delinquency and crime.

When one sees daily the problems of personality for the very practical considerations of possible modification, one gets the impression of the tremendous complexities of the factors that make personality, and at the same time one is not a little encouraged by considering the achievements that are possible in alteration of personality trends. All too little has been done as yet by way of research into the kinds of ideational content that make for special personality manifestations. I should be inclined to range this in value with the studies of emotional life which are being so stressed nowadays as important for understanding personality development. Some years ago Dr. Mayo spoke before the American Psychological Association in the strongest terms of what influence the day dreams of children have upon their careers. There is a great deal in his contention. When one thinks, for

example, of what might have been prevented if, in that famous Chicago case, the ideational life of those two boys had been known years before, one can realize the import of phantasies. In the study of personality much has to be accounted for, and the individual case cannot be looked at with too much bias in favor of either external or internal causal factors being predominant.

CHAIRMAN WHITE.—Dr. Healy has blazed the trail. He was one of the gentlemen who was challenged by Dr. Thomas. Will someone else give us the benefit of his experience?

MR. KIMBALL YOUNG.—One or two things have been suggested by what Dr Healy just said.

This last remark of his, about the study of the ideational aspects of personality brings to my mind something that I am very much interested in.

It seems to me that we can never get anywhere by a study of the purely external behavior of the person, nor shall we ever get a complete picture of a person by studying only the situations in which he grows up, if we do not also take into account what might be called the ideational or the content side of mind and behavior. It seems to me that a study of the mechanism of conditioning, to use a term from behavioristic psychology or a study of the mental mechanism pure and simple, leaves a good deal of the material out of account that we in sociology and social psychology are interested in.

I should like to illustrate what I mean by this by referring to a study made some years ago at Clark University in the process of forgetting. This study by Crosland was concerned purely with the actual mechanics of forgetting. He was interested in noticing how, given a set of stimuli (visual and auditory), his subjects, who were brought back into the laboratory some of them as long as three years later, reported their images. He was concerned with how the images and ideas which were associated with those original presentations changed in the course of time. He threw a good deal of light from a laboratory point of view upon some of the mechanisms that Freud and other psychoanalysts have discussed—dramatization, condensation, transposition, secondary elaboration, and identification. These facts, of course, have been discussed in various studies. But the place of the content in behavior was completely ignored. Crosland was only interested in mechanisms. It seems to me that that alone is not sufficient. We do not only want to know how these mechanisms of ideas have changed, but what *are* the ideas in the individual's mind. It seems to me here that the cultural patterns come into the picture, to use an anthropological term. If you stick only to the study of the externalities, or mere mental mechanics, you cannot get a complete picture.

The place of content may be illustrated by reference to a study of religious formulations in which I have been interested.

The material on dereistic or autistic thinking, following investigations with schizophrenic patients, has thrown a great deal of light on normal thought content. The older idea that these dereistic associative processes were distinctly pathological will probably have to be given up. Ordinarily the schizoid personality is considered completely out of range of anything approach-

ing normal social life. For some years I have been making a collection of examples of dereistic thinking from the fields of religious experience, secret societies, political behavior and philosophy. I should like to see a very thorough investigation made of the relationship between these autistic thought processes in the more pathological case and the similar phenomena in these more socially acceptable situations.

From the point of view of sociology and social psychology, we must recognize that the extremes of schizophrenia are not socially acceptable because the patients' thought content is considered so extreme as to be outside the field of normal social intercourse; that is, one does not understand the content of a man's mind. It is on the basis of common content quite as much as common mechanism that meaningful communication between individuals may be built up.

Therefore, if the less extreme schizophrenic person is able to project upon his contemporaries his delusional system and with it all be able to keep in somewhat normal social relationships with these other persons, he may be able to secure their acceptance of his delusional system as the basis for their own social behavior. The essence of social reality is not material culture by any means. It exists in the minds of the people in any particular group concerned. Thus, if a group of people accepted the schizophrenic religious, political or philosophic view of our supposed person, their social reality would be colored and affected by his. In fact, his dereistic picture of the world becomes a section of their social reality. The history of religion is a particularly fruitful field for a study of this sort of thing. Witness the case of magic, of various religious philosophical schemes of the universe, of religious-economic utopias, and so on, where the source of these ideas has come from persons whom we would now consider pathological but who in earlier societies were accepted as messengers of divine or supernatural force.

I have a student at work going through the literature on more divergent religious sects to see the amount of this stuff which correlates with material which has been collected from the study of schizophrenics particularly. It is enormous. Everybody gets pamphlets coming across his desk from various strange religious groups, which illustrate beautifully the persistence of dereistic thinking in the normal population. If you cast these pamphlets into the waste paper basket and say, "This is just bunk" or "These people are crazy," I think you miss the whole point of it. There are thousands of people who believe in these ideas and who operate upon these beliefs as absolutely sound.

For some years, I have been making a study of the early foundations of Mormonism. One gets in the case of Joseph Smith an excellent illustration of this sort of thing. It was not only the mental mechanism in his case, the fact that he was probably epileptic was not nearly so important as that he put forth his particular religious forms and forced it upon his followers who accepted it and put it into active operation because they believed him to be a divine messenger.

If we could make a study beginning at the pathological end of schizophrenic thinking and carry it through systematically to these other fields,

we should have a basis for formulating a graded series of attitudes, ideas and habit patterns which represent the subjectivity or objectivity of social reality and social behavior. I have some material from the Ku Klux Klan religious groups and philosophy which illustrate this whole range.

Finally, this comes close to the question of the relationship of these thought processes and content to social and material reality. We are here face to face with the fundamental psychology of symbolism, and again we should attempt the integration of the work of those interested in the clinical fields with the psychologist and sociologist who is concerned with the higher mental processes and their social effects. The fields of science, pseudo-science, literature and philosophy are again rich with concrete materials. The whole social function as well as personality function of dereistic thinking furnishes a rich and suggestive field of research.

I should like to get some discussion today on this question as to importance of analyzing the ideational content of the individual as revealing significant phases of the personality. This would bring up the question of the family situation and culture background of personalities. If dereistic thinking is a common phenomenon in normal personalities we may have to recast our whole notion of the pathological and abnormal. These terms become questions of social ethics that have nothing to do with the science of social behavior at all. The terms "anti-social" and "pathological" both give themselves away. We ought not to be concerned with those problems at all but only with the behavior manifestations.

CHAIRMAN WHITE.—Does someone have something further to say before lunch?

MR. FRANK H. KNIGHT.—This matter of abnormality he says is a matter of social ethics and that science has nothing to do with it. I would just like to ask the question: Aren't there two kinds of abnormality that perhaps run into each other? You can define an abnormal person either as a person who thinks crookedly; there is a factual side; his mental processes and interpretations are wrong; or as a person whose values are wrong. If you look at abnormality in the two ways, you will perhaps find there are two different kinds of cases. I want to ask Dr. Young especially, and the others too, and to suggest that perhaps sometimes we underestimate the importance of that distinction; perhaps sometimes we overestimate it, but the thing I have worried about quite a bit is as to whether straight thinking in the logical sense isn't more relative to established social standards, norms that have a social background and are truly norms. Perhaps we do overdo the distinction and contrast as to thinking straight in the logical sense, which we think of as being highly objective, or on the other hand having correct valuations, having correct reactions to social situations from an ethical standpoint.

MR. YOUNG.—I am always a little bit confused when I talk about values to an economist because I don't know what economists mean by values. But certainly values are a part of behavior data. I was thinking particularly in what I said, however, of people who are constantly asking you to do something with these particular cases. As a result we have a lot of no-

tions in our heads about abnormal and anti-social behavior. I was thinking of the point of Dr. Healy that if you come to study the cases of these individuals, you wonder how it is that a great many other people have not got into similar difficulties. I was thinking especially that you have to segregate the question of the immediate social therapy from the question of the scientific study of these people.

On this other matter, however, it seems to me that you put your finger upon a very important fact. We don't know as yet, and haven't attacked the whole question of the cultural background of the Greeks from whom we acquired our notions of logical thinking. The syllogism itself is probably related to certain definite factors in their own culture and without it we might have developed entirely different methods of framing so-called logical thinking. It seems to me we have to take this into account with all these so-called abnormal people. The reason you cannot understand Queen Anne at Worcester or Daniel Harrington over at Wards Island is simply that you are not in communication with them, but if you would accept their delusional system and their logic it seems to me you could build up a set of social relationships there that might very well be carried on for endless generations. It seems to me that the study of magic, of religion, and much of what might be called divergent behavior, are all related to this matter. It is something that in our interest of purely objective studies of behavior, we tend to ignore.

MR. ARTHUR RUGGLES.—Dr. White, I would like to suggest some approaches which perhaps will bring together some of the views already expressed. I was interested in what Professor Young said and what Dr. Thomas expressed as to the feeling of guilt and its relationship to thought processes and behavior reactions. The question of religious ideational content suggests the name of John Bunyan. I recently heard a paper on John Bunyan which, it seems to me, illustrates one point, namely, no matter how thoroughly we understood his ideational content, yet we would not be able to accept or reject it unless we understood thoroughly the social situation of his time. Someone has referred to it as the period of religious epidemic, and to understand the religious content of John Bunyan's mind, his suffering and the things that he endured—and that produced his great writings—we would certainly have to understand the times, the mass psychology and its influence on his affective reaction; and it would illustrate to me the tremendous necessity of taking a total view of all these situations and the behavior that was influenced by them. Again it brings to me the necessity of emphasizing the importance of something I hope we will hear discussed this afternoon, which has been illustrated by so many members here asking for the views of others in referring to the lack of uniform technique, and that is that before we proceed very far we must have an actual pooling of our interests and we must be able to talk to each other with an understanding of the other man's language.

Dr. Healy has stressed a point that I was impressed with this summer: In Europe many of the concepts that are familiar to us are absolutely unknown to groups of very earnest and effective workers and we have got

to learn what they mean by certain of their nomenclature, and they must interpret our work with an understanding of our terminology. A group working together on the problem of human behavior would be able to gain such mutual understanding. A few years ago I was interested—and I still am—in an institute of human behavior. Many groups were consulted about such an institute. At that time we thought we had included all groups probably actively interested in the study of human behavior and, yet, three years ago we had left out a number of important ones, as we have since realized.

It seems to me the next great step is not the building of more hospitals, is not so much the writing of articles from isolated experience, as it is an attempt to get a group living and working together on the total situation of human behavior, and whether the approach to human behavior comes through the study of the chimpanzee, or whether it comes from the contributions of the biological laboratory, or from the data of the anthropologist is not the important point; the important point is that we have all the varied viewpoints brought to bear on the one subject of man and his reactions.

One of the speakers has emphasized the need of available material: we can get plenty of material, but we can't study that from a control standpoint until such time as we group our material, intramural and extramural, where it can be studied by a group who understand each others' language and have a fairly determined technology for their point of departure and where the results that are obtained, or appear to be obtained, are checked in the light of cold factual material.

One great need at the present time is to go after all the facts related to human behavior and then by a most careful discussion of them—which must take many years—come to at least some of the points of common departure that can be mutually accepted. Until such time it seems to me the behavior monographs, important as they may be, would still be lacking in scientific accuracy, because they have not been produced by the same technique and have not been checked by the same comprehensive viewpoint representing all the factors which determine man's reactions.

CHAIRMAN WHITE.—Is there something further? Let us proceed. We want to get as wide a field of expression from everybody as we can get here, and we haven't a great deal of time in which to do it.

Dr. Ruggles has spoken about the desirability of getting all of these various viewpoints represented in a group so that they can all be focused upon definite factual problems. There are a number of people here who have dealt with those very definite types of problems. Maybe Dr. Frank will say something to us now, for example.

MR. LAWRENCE K. FRANK.—One question that may be suggested in so far as the psychiatric worker attempting to obtain something of the social history of the patient is concerned: How far would it be useful for the social scientist to try to tell something about the social ecology or backgrounds and conditions out of which those patients seem to arise? Would that make a feasible and practicable method for collaboration almost imme-

diately? There are psychopathic hospitals that take their patients from rather definitely circumscribed areas. The psychiatric social worker necessarily is restricted to finding out about the individual patient who is, so to speak, a sample of that environment. Would that suggest a possibility for elaboration of technique?

CHAIRMAN WHITE.—Mr. Frank has raised a very pertinent question. The social worker does not ordinarily touch the social setting, except in a very superficial way.

MR. ROBERT E. PARK.—It occurs to me that there are a good many different points of view represented here and that the facts in any case will always be different from every point of view in every universe of discourse; that is to say, a fact is a fact only in a universe of discourse. The suggestion that has been made, that we should get up a monograph in which all of these facts can be brought together, would certainly be a very interesting experiment and might be one way of finding out what the different languages that we are using here are, how many different kinds of facts there are that might be centered on some one particular person, and it also might be brought out by such a study as to what the relation between the facts conceived and gathered from one point of view are to facts conceived and gathered from a totally different point of view or even a slightly different point of view. Perhaps some such investigation as that, carried on by a liaison officer, might enable us to really talk about these questions with more definiteness and more success than we are likely to as long as we speak about the personality and mean quite different things when we use that term.

For example, the sociologist is not interested in different personalities first of all, but he is interested in culture, he is interested in custom, but custom based on habits of individuals, and custom grows out of changes in habits of individuals, and it is broken down by the coming together of individuals with different habits. Intellectual life is largely dependent upon people coming together and talking about things which mean different things for them, because they have had different associations with them.

So we have here today a very good illustration of just that fact, that we have people who have been looking at things from their own point of view, with the use of rather different language, who represent, so to speak, a number of quite different universes of discourse, quite different points of view, and it probably would be a very profitable thing if someone would really undertake to translate these different ideas into the language of the others. I don't know but that Professor Thomas, in his book that he is now publishing, has really done that for us. He called himself a sociologist, as he was talking here this morning, but he was certainly talking a language that was quite strange to me as a sociologist. I don't know what has happened to him.

CHAIRMAN WHITE.—We shall now adjourn for lunch.

The meeting adjourned at twelve-fifty o'clock.

SATURDAY AFTERNOON SESSION

December 1, 1928

The meeting convened at two-ten o'clock, Dr. William A. White presiding.

CHAIRMAN WHITE.—We had an interesting session this morning and ought to profit by that and have a more interesting one this afternoon. One cannot develop a method *in vacuo*, and with a morning of clinical experience perhaps we have found out how to do better.

It seems to me that the contribution that a group of this sort ought to make should express itself as a contribution from each individual viewpoint of what he thinks there is to be done about this problem of cooperation and correlation and integration that is before us. Inasmuch as everybody appeared so shy this morning, it has been suggested that this afternoon we lock the doors and proceed by rough-house methods to extract from each individual, by such means as may seem most desirable on each occasion, exactly what he thinks about the whole thing, and so it has seemed to be wise that we should call upon someone to lead off the discussion in a very definite way. Therefore, I am going to call upon Mr. Frank, to see if he can't inject this necessary element of stimulus into the meeting for the afternoon.

MR. LAWRENCE K. FRANK.—This is an attempt to state the situation raised by the discussion this morning in order to focus further discussion.

The situation today as regards psychiatry and social science might be described in this way: The social scientists are engaged in studying various aspects of human behavior as they are recorded in the different institutional practices such as buying and selling, voting, marriage and divorce, and so on, and they are for the most part concerned only with the aggregate or mass aspects of these several forms of behavior. The psychiatrists, on the other hand, are concerned with the individual personality which they approach through the clinical method and their interests and activities are to a considerable extent, controlled by their therapeutic obligation. To a certain extent, it might be said that the social scientist knows very little about the individual human behavior which makes up the aggregate activities they study while the psychiatrist knows very little about the aggregate mass activities of which his individual under treatment forms a single contributing unit.

From another angle we might say that the social scientist studies the more or less conventional or modal behavior of people which represents an approximate adjustment or conformity to social requirements, whereas the psychiatrist is concerned more with the individuals who fail to achieve the modal adjustment and deviate into the criminal or neurotic patterns. Looked at in this way we might say that in the normal course of distribution of human behavior the psychiatrist is dealing with the two extremes, criminality and mental disorder, while the social scientist is dealing with the mode.

If the psychiatrist and the social scientist are to assist each other in the forwarding of their professional studies, one basis of cooperation might be this:

The social scientist might ask the psychiatrist to consider how in his professional work he might better collect and record data of human behavior which would be susceptible to scientific study and analysis, thus recognizing that the social scientist needs more immediate data on human behavior for his studies and that the psychiatrist is in the position to furnish him with the data, provided the psychiatrist will consider more carefully the requirements of scientific work. In other words, the clinical case histories are not sufficient records for the social scientist.

Psychiatrists might ask the social scientists to recognize more explicitly in their work the conceptions of human nature and of human behavior which the clinicians have been establishing to contrast with the older naive notions implicitly, if not explicitly, stated in social theories. Furthermore, the psychiatrists might ask the social scientists to affirm explicitly that they are dealing with problems of human behavior and that such things as prices, credits, votes, marriages and divorces, are not entities in themselves but so many records of human behavior in its attempt to adjust to social situations.

The situation may be illustrated by reference to physics: If a group of physicists were to study the visible spectrum while another group studied the infra-red rays and another the ultra-violet and X-rays, with no reference to each other and with no common basis of understanding of the underlying energy transformations which reveal themselves in these several forms of radiation, we would have a situation somewhat similar to that which now obtains among the psychiatrists, psychologists and social scientists.

Another point upon which the psychiatrists and social scientists might profitably seek further agreement is in the recognition of the view that wherever the social scientist finds a problem of economics, politics, sociology, anthropology and so on, there is present a social situation calling for adjustment by the individuals participating therein, the outcome of which is of considerable importance to the psychiatrist. In other words, every activity which is recorded in the social data used by the social scientists is the product of an individual's reaction to social situations interpreted and considered in the light of his personality limitations and needs. There is, therefore, an opportunity for bringing the experience and insight of the psychiatrist into the consideration of their problem of social science as there is an equal opportunity for importing the studies and methods of the social scientist into the clinical study of human behavior, especially in its deviations from the social norms.

In so far as the social scientist is concerned with uniformities, he attempts to obtain from his data the probable values and some form of average, median, or mode, by manipulating these data statistically to yield such values. In this manipulation he deliberately minimizes or disregards the extremes in this curve of distribution which represent individuals who have, because of their peculiar personality make-up, behaved in patterns which tend toward the extremes and away from the modal activity in which the social scientist is primarily concerned. If, therefore, the social scientist were to take his frequency tables and curves of distribution to the psychiatrist he might obtain considerable help in understanding and evaluating his data; while, on the

other hand, the psychiatrist would most certainly begin to see just how great a range of variation was occurring in so-called normal social life, and in so doing would undoubtedly find considerable illumination on his individual problems in the understanding he would gain from the social scientists' findings.

The participation of the law in this situation might be stated in this way: The law, both statutory and common law, sets forth the socially sanctioned ways of carrying on life which the social scientists are busily engaged in studying. In doing so, the law theoretically provides patterns of behavior for all life situations which, if observed in the individual's conduct, would enable him to avoid any conflict, or at least would protect him if any conflict did arise. It happens, however, that the ability of individual persons to employ these legally-sanctioned patterns is largely conditioned by their experiences and constitutions which go to make up their total personality, so that observations on the legally-sanctioned patterns and the variety of devices and the conflicts engendered thereby (which it is the business of the practising lawyer and judge to handle and resolve) are incomprehensible without the contributions both of the social scientist and, more especially, of the psychiatrist. Moreover, it is clear that in so far as there are shifts and changes in the material and non-material culture of a group the very existence of rather fixed and established patterns, legally sanctioned and legally enforced, tends to increase the difficulties of the individual and to foster personality deviations, because the individual is being forced by the cultural movements into the use of new patterns of behavior which lack legal sanction and by so much create in his mind conflicts which may be resolved in frank disregard of the law, both criminally and civilly, or a more or less serious mental disorder.

As a further corollary to the above statements, it must be clearly understood that the social scientists can not take the point of view that all they need to do is to go to the psychiatrist and psychologist for their psychology and that, with the conceptions and ideas they borrow from these sources, they can proceed to their studies and their theories. It should be emphatically stated that the understanding of human behavior calls for the contribution of the social scientists who alone can complete the picture of the total psychology of man by indicating how man behaves in his economic, political and social affairs which it is the business of the social scientist to illuminate. Consequently, it must be clear that the psychologist and psychiatrist are as much dependent upon the social scientist for the successful and well-rounded studies and understanding of human behavior as the social scientist are dependent upon them and that, further, the practising lawyer, the judge and the law teacher can not dispense with the contributions of all these groups in the study and teaching of the law, nor can they evade their share of responsibility in contributing toward the understanding of the total behavior of man and the participation of the law in the development of personality and of mass behavior.

At the risk of unduly laboring the point, it may be again said that the fundamental problem of medicine, psychiatry, psychology, law and social

science is that of human behavior, just as in physics and chemistry the fundamental problem is that of the organization and activity of what we call energy. Just as the physicist and chemist use a great variety of instruments and techniques for collecting and recording and studying the data which show the various ways in which energy is manifested, so in the field of human behavior we must recognize that all the various kinds of data now obtainable and the many new forms of data which must be obtained in the future, represent not entities in themselves but records of the activities of man viewed as an organism engaged in making these innumerable adjustments, each one of which may be detected through the application of the various techniques which scientific research provides.

Another opportunity for joint effort is presented in the urgent need for a desirable method of introducing into the training of the young social scientist these dynamic conceptions of human nature and of personality so that the on-coming generation will be better prepared to carry on this proposed collaboration by reason of its early induction into sympathetic understanding of the subject. No less important is the presentation to the physician, and especially the psychiatrist, of the contributions of the social scientists and especially the general conceptions and ideas grouped under the term "social anthropology" or "cultural anthropology," so that they will begin to understand and consider more carefully the role of cultural tradition and institutional life in the patterning of human behavior and its modification. This is especially important at the present time since it is evident that no small part of the behavior deviations represent efforts to encompass adjustments where the cultural traditions and the institutional patterns are in the process of change. This suggests that every major category of behavior deviation may be considered as an index of a social disturbance of which the social scientists as a group may not be sufficiently aware.

By training and tradition the social scientist is inclined to look for uniformities and by training and professional obligation the psychiatrist is inclined to be more interested in variation. Is there any possibility that these points of view may be reconciled to meet and to supplement each other by viewing the total social situation as made up of model patterns with institutional and legal sanctions within which there is opportunity for enormous individual variability, the extremes of which are to be recognized as the criminal and the neurotic?

CHAIRMAN WHITE.—Mr. Frank's paper has suggested a good many things might be profitably discussed. I am wondering if some of the Chicago data do not fit in with some of his suggestions regarding the study of relatively restricted cultural areas. I wonder if Mr. Shaw can't enlighten us upon that point.

MR. CLIFFORD SHAW.—For some time I have been interested in the study of delinquent behavior and my work at the Institute for Juvenile Research in Chicago has developed along two general lines. In the first place, I was interested in making rather detailed case studies of delinquent boys. I took over bodily the outline which Dr. Healy had used in his case studies. In that connection I was interested in elaborating his method along two particu-

lar lines. In the first place, I was interested in making family interviews, and in as many cases as possible I obtained stenographic reports of the family interviews. I think that method has two or three rather distinct advantages. In the first place, as you can readily observe, it is more accurate, eliminating the possibility of personal bias in recording the interview, and in the second place a family interview—that is, where you interview the entire family as a group—tends to give one a picture of the interrelationships in the family and enables one to get a picture of the total family situation rather than the particular aspects of the situation that one would get through interviewing the different individuals separately.

Another elaboration of Dr. Healey's method which I was interested in was getting more complete life histories from the brother and also from other members of the family, if it were possible, and in some cases life histories from intimate associates of the delinquent. It is possible that the life history document isn't an accurate objective scientific technique, but I have found that the life history document very frequently gives very valuable insight into the inner mental life of the child and affords a basis for dealing rather effectively with the child.

I have been very much interested in Dr. Healy's emphasis upon the ideational life of the child. Recently his article on "The Mental Background of the Child," which came out in the *Mental Hygiene Bulletin*, laid particular emphasis upon that.

Another line of approach, aside from the detailed study of concrete cases, was to study the geographic distribution of delinquents in Chicago. For two or three years we have been engaged in that particular phase of the study, trying to find out where the delinquents lived in the city. We have just completed 13 series of cases, one series of truancy cases, including about 7500 cases, 9 series of juvenile delinquency cases, each series having between 7000 and 14,000 cases, 1 series of young offenders between the ages of 17 and 21 years who were brought into the court, comprising about 2500 cases, and a series of cases of adult offenders comprising about 10,000 cases. I have brought with me maps showing the distribution of these cases. These are base maps of the City of Chicago.

This first map shows the distribution of places of residence of the 11,000 boys between 10 and 17 years of age who were brought into the Juvenile Court from 1917 until 1923. Each spot on the map represents the place of residence of one boy.

This map shows the distribution of places of residence of the 9000 individual boys who were brought into police stations as alleged delinquents in the year 1928.

This map shows the distribution of places of residence of the 10,000 adult offenders.

This map shows the places of residence of the 9000 boys who were brought into the Juvenile Court from 1900 to 1907.

If you study these maps carefully, you will observe that there are certain areas of very decided concentration in the city. On every map you will

observe that the areas of greatest concentration lie just outside of the Loop district, the central business district of the city. This is the loop area of Chicago, the central business district, and on each map you will observe a very decided concentration of cases just northwest of the Loop, another decided concentration just west of the Loop, and then south in the negro district and around the Stock Yards, and in every series you will notice rather decided concentrations down around the Steel Mill region of South Chicago.

After completing these maps, we computed the rate in each series; that is, we determined the per cent of cases in the population of similar age and sex, by mile square areas. In this series, for example, we determined the per cent of delinquent boys brought into the Juvenile Court during this period, 17 to 23, in the total male population in each mile square area in the city, and we did the same thing in that series. In the case of adult offenders we determined the per cent of offenders living in each area in the total 17 to 44 adult male population, and the age group in the last series was 10 to 17.

When we began to compute rates, we discovered some very interesting things. We found that in each series of truancy and delinquency cases the highest rates occurred in the areas just outside the Loop.

Supposing I give you the rates along line radiating from the Loop in each direction; that is, one line northwest which cuts through this area of concentration northwest of the Loop, then a radial out southwest, and then south along the Lake Shore. I will give you the rate of the series of boys brought into police stations as alleged delinquents. In 1926 in the first mile square area just outside of the Loop northwest, 25.6 boys were brought into the police stations as alleged delinquents; in the next mile square area 14.3; in the next mile square area 8; in the next 3, in the next 1.6, 1.2, and in the last 1.7. The variation there is from 25.6 to 1.7. Just west here the rate is 21.5 in the first mile square area, 9.8 in the second, 8.3 in the third, 3.2 in the fourth, 2.9 in the fifth and 0.8 in the last, a variation from 21.5 to 0.8. The same thing is true in each direction along each radial from the Loop outward, for all lines of delinquency cases, including both male and female cases. Here the rate is 10.2 in the first mile square area, 4.9 in the second, 1.7 in the third, 1.5 in the fourth, 1.3 in the fifth, 1.4 in the next, and 1.5 in the last.

MR. KNIGHT.—Are those human individuals or cases?

MR. SHAW.—Those are individuals.

MR. YOUNG.—What does the general population in a pyramid look like along those first mile areas? For instance, along West Madison Street, in that area isn't it true there is a very decided concentration of population on the male side in the older aged groups? In other words, it isn't as bad as it looks from the point of view of delinquency.

MR. SHAW.—This is the percent of delinquency based upon the total of population. In the mile square areas the total male population would be at least 700 to 800.

MR. YOUNG.—In what is known as Hobohemia the population is other than it is in the typical population group, as to age groups.

MR. SHAW.—The number of boys between the ages of 10 and 17 would be proportionately small there, but not in the south and southwest.

QUESTION.—Aren't most of those Juvenile Court offenses petty thefts?

MR. SHAW.—The Juvenile Court cases are about 78 per cent stealing cases, but those rates are very similar to the police rates.

I haven't the rates for the adult series with me, but after computing these rates we constructed zones at one mile intervals from the Loop outward and averaged the rates in each of those zones, in each of the series. In the 1926 police cases the average for each of these zones was something like this: The average rate in the first mile was 20.9. That was the average of all the rates in the first zone adjacent to the Loop. In the second it was 10.7, in the third it was 11.9, in the fourth 8.1, in the fifth 5.6, in the sixth 3.1, in the seventh 1.6, in the eighth 2.1, and in the last zone 1.7.

For the truancy cases we computed the rate for the series of truant cases and the average in the first mile was 12.4, in the second mile 7, in the third 6.6, in the fourth 3.8, in the fifth 2.8, in the sixth 1.5, in the seventh 1.3, in the eighth 1.3, and in the last 2.3.

For the young offenders between 17 and 21 years of age the average rates for each zone, covering a series of 7500 youthful offenders between 17 and 21 years of age who were brought into the Boys' Court during a 2-year period, the average of the rates in the first zone was 25.1, in the second 16, in the third 15.5, in the fourth 9.9, in the fifth 7.5, in the sixth 5.3, in the seventh 4.1, in the eighth 3.8, and in the last it was 3.8. We find the same thing is true for the adult series, that the highest average rates occurred in the areas just outside of the Loop and decreased toward the boundary of the city.

I referred to this very early series of 10,000 cases of boys brought into the Juvenile Court from 1908 to 1917. This last map is very similar to this more recent series, 17 to 23, with the exception that the delinquency area has expanded during that period of 25 years. The rate of delinquency has remained almost constant in the areas just outside the Loop, in spite of the fact that the composition of the population has changed very decidedly during that period of time. About 55 per cent of the cases in that early Juvenile Court series were of German and Irish extraction, while in this latter series only about 5 per cent were of German and Irish extraction. During that period of 25 years the rate of delinquency in German and Irish groups has decreased from about 25 to 2 in each series. That seems to indicate that as these older national groups have moved out of these delinquency areas, the rate for delinquency in those groups has decreased.

I might say that we correlated these rates in each series with the rates in every other series. The lowest coefficient of correlation that we have is plus .61, indicating that in the case of truancy delinquency, Boys' Court cases and adult offenders, we tend to have the concentrations in the same areas.

MR. YOUNG.—What is the correlation of density of population in these areas?

MR. SHAW.—We find that the most dense population is in the areas just outside of the Loop.

We find that delinquency correlates very highly with a great number of factors. It correlates very highly with dependency, for example. We have three coefficients of correlation, namely, .68 in each of two series and plus .65 in another series. It correlates very highly with per cent of foreign born, with per cent of aliens, and with probably many other factors.

That point on the movement of nationalities was an extremely interesting one to me, in that the rates in these older national groups that have moved out of the delinquency areas have decreased during that period of time.

One other point to which I merely want to refer is that in this study we have been interested in the number of participants, the number of boys involved in cases of stealing. We studied 6000 instances of stealing to determine the number of participants, and we found that in 91 per cent of the cases two or more boys were involved. We based that study upon the number of boys who were actually brought to court. We found also that the number of boys actually involved varied with the type of offense; that in cases of petty stealing, for example, which is usually the first stealing experience of the child, a much larger number of boys were involved, whereas in cases of holdup and more highly specialized types of stealing, a much smaller number of boys were usually involved.

I think that covers most of the points which I wanted to make.

MR. PARK.—You haven't answered the question about the cultural areas. Were these cultural areas that you were dealing with?

MR. SHAW.—Yes, I think delinquency is a pretty good index of the type of cultural area; that is, I think these are areas of delinquent culture. That is just a hunch, a guess.

MR. PARK.—Did you have various types of delinquency in different areas?

MR. SHAW.—Certain types of delinquency tend to be concentrated in certain areas of the city; not all types. For example, cases of homosexual practice brought into the court come for the most part from the boarding house district, what is known as Hobohemia, but of course cases of automobile stealing are distributed throughout the delinquency areas.

QUESTION.—What other types of delinquency seem to be localized?

MR. SHAW.—Cases of shoplifting in the shopping district are concentrated in the areas just outside of the Loop.

MR. YOUNG.—Isn't there actually a factor there, independent of population and of nationality groups, in the kind of occupation, the economic status of the people who live in these areas? These Germans and Irish have moved out. Who have taken their place? Italians, Poles and others. Isn't there something about the ecological set-up and the cultural set-up that makes for delinquency in these areas?

MR. SHAW.—I presume that there is. In studying rather detailed cases I find that in many cases the first delinquent experience with boys occurs in a gang. There are established delinquent gangs in the city which have definite delinquent tradition, and probably in this area of great mobility and disorganization, which lies just outside of the Loop, delinquency can become established as a tradition. There is no community spirit and no community organization.

MR. WELLS.—Have you any analysis of the culture from which these boys come, as related to the type of delinquency that they commit?

MR. SHAW.—In the Juvenile Court cases most of them are repeated offenders who have committed almost every type of delinquency, as a rule. Dr. Healy probably has more information on that particular point than I have. I think in most cases various types of offenses would be represented in any given case.

MR. H. S. SULLIVAN.—Can you answer such a question as this, Mr. Shaw: From whence come your clues as to which factors, of the many that correlate closely, have etiologic significance?

MR. SHAW.—I haven't attempted to go into that question at all. Those are simply coefficients of correlation to me. I get more concrete hunches from the study of specific cases. That is, you may discover that a particular family situation or a gang situation or a school situation or some physical defect or something else may be the significant factor.

MR. SULLIVAN.—It even seems possible at times that there are statistical findings which have (shall I say) no actual validity.

MR. SHAW.—I think as we work on and carry this study farther, make these more general statistical studies and at the same time make studies of detailed cases, that we may be able to interpret these findings concretely. I am thinking of these factors as indices of the type of community.

MR. PARK.—How far could you say that these correlations which you have are indices of social disorganization; that is, breaking up of the cultures that immigrant people bring to this country, or mobility?

MR. SHAW.—I should say that they are very reliable indices of that situation, and as a particular national group moves out into a more stable community the rate of delinquency in that group decreases. We find also that the rate of delinquency in a given race or national community varies with the type. In the Jewish group or in the Italian group, the amount of delinquency in a given national group varies with different neighborhoods, different sections of the city.

MR. PARK.—Could you give some concrete illustrations of what this social disorganization in the community actually means?

MR. SHAW.—I think in the case of delinquency it means that these delinquent patterns may become established in the community and become the culture of the community, as far as the boy is concerned.

MR. PARK.—Isn't it true that there is more delinquency where you have mixed groups than where you have solid racial groups?

MR. SHAW.—It is certainly true that you have more delinquency in areas where you have a succession of national groups, although you have high delinquency rates in a solid negro group.

MR. PARK.—You have a high rate of delinquency in an Italian group among the girls, don't you?

MR. SHAW.—Yes.

QUESTION.—Are these economic groups? Does the income of the people living in those sections represent about the same amount?

MR. SHAW.—Yes, I presume there is very little difference in the economic status of the people living in the zone within two or three miles of the group. There are great cultural differences, however, between the Italians, for example, the negroes, or the Poles.

QUESTION.—It has been found that the negroes make substantially lower wages than the whites in the same employment, according to Miss Hotaling's study.

MR. SHAW.—I have no specific information on that question, but I should say that roughly those groups represent about the same economic status, certainly so far as the Italians and the Poles probably in the areas around the Loop are concerned. The rents in that area are about the same.

QUESTION.—Mr. Shaw, do you describe these areas in terms of culture or in terms of the physical make-up of these areas, or in both, and which do you stress? I mean, do you emphasize this notion of interstitial areas, for example, or do you emphasize the point of conflicts of culture?

MR. SHAW.—I should say conflicts of culture.

QUESTION.—You don't think that physical things, like railroad yards and stock yards, and so on, play a very important rôle?

MR. SHAW.—Yes, I think they play a very important rôle in determining the boundaries of these areas.

QUESTION.—Do you think that these cultures select these physical areas? Do they tend to move into these areas for economic or other reasons?

MR. SHAW.—The immigrants tend to move into areas of very low rents, and those areas are found near the Loop.

MR. SAPIR.—I have just one difficulty, Mr. Shaw, with your conception of the cultural nature of these areas. I think I follow you in the main sympathetically, but there is just one question in my mind. Do you mean essentially that the populations in these zones value delinquent conduct as such, and that the intensity of the valuation diminishes as you proceed away from the Loop, or do you mean that the cultural conditions of conflict are such as to bring about in decreasing proportions those deviations of conduct?

MR. SHAW.—I should say the latter was true.

MR. SAPIR.—If that is so, it isn't so much the case of cultural mapping as the mapping of lack of functioning of a culture.

MR. SHAW.—Yes, or the disintegration of a given culture.

MR. SAPIR.—If I felt, for instance, that the people right on the inside of the Loop made a kind of heroic code of certain types of shoplifting or homosexual misdemeanor, that would give me an entirely different point of view.

MR. SHAW.—That may be true.

MR. SAPIR.—For instance, horse stealing is the result of delinquent conduct, but if you are studying the life of the Black Indians, it is a sort of delinquent conduct looped up with all sorts of supernatural ideas. You would therefore have to know how to interpret that delinquent conduct.

A MEMBER.—In that case you would have to know how that kind of standard came in.

QUESTION.—How far do your figures show that delinquency is a culture?

MR. SHAW.—The figures show that delinquency is due to a certain culture and occurs in certain cultural areas in the city.

QUESTION.—Do your cases show that the origin of most forms of delinquency is due to the fact that the child has been exposed to a delinquent pattern?

MR. SHAW.—Yes, and we can trace the patterns from one group to another, from one individual to another, and from one section of the city to another. I might just illustrate that point in the case of shoplifting in the Loop. Five boys were brought into the court charged with shoplifting in the large department stores located in the Loop. They lived down by Washington Park, about seven or eight miles away from the Loop, and it was rather unusual for us to get a case of shoplifting from that part of the city, so I became immediately interested in tracing the pattern, if possible. I interviewed each of the five boys and I found that one boy was responsible for introducing the technique into the group. I interviewed him several times and I learned that he had been the member of a group of shoplifters over near McKinley Park, which is within about three and one-half miles of the Loop, and he gave me the names of the boys who were the members of the gang, and I found from those interviews that one boy had introduced the shoplifting technique into that group. I traced that case back and found that that boy, an Italian boy, had at one time lived at Harrison and Des Plaines Street, within four blocks of the Loop, and had been a member of the shoplifting group there. That is a section of the city in which shoplifting is a very prevalent type of delinquency.

Now, I may be entirely wrong in my interpretation of that case, but it seemed to me that there I had traced this technique of this particular pattern from one group to another and from one section of the city to another.

MR. FRANK.—How much of the data for this study were you able to get from the Juvenile Courts of the city? Do the records of the court give you the basis for such data as these?

MR. SHAW.—We get those direct from the court records.

There was one other point to which I wanted to refer. We made maps showing the distribution of the places of residence of individuals and then we made maps showing the distribution of cases, making a spot for each time the boy appeared in the Juvenile Court or in the police station, whichever the case might be, and we found that in the areas having the highest rates of delinquency were to be found the highest rates of recidivism. If you compare the individual rate with the case rates, you will find the greatest difference in the areas having a high rate of delinquency, and as you proceed toward the areas in which the rates are low, the rates become almost identical. The areas having the highest rates of delinquency are the areas having the highest rates of recidivism.

MR. HEALY.—I admire tremendously this work by Dr. Shaw. I have followed it for the last two years and have appreciated it in its growth. To my mind, two steps forward must be taken in order to prove the great value which I think is implicated in such a study.

First, in other cities one should survey areas in the same fashion. I am sure that one would find distinctive topographical differences, though probably not radial as in Chicago. One knows of areas in and about Boston, for example, that furnish comparatively an excessive number of those who have to be sent to correctional institutions.

Second, the most practical consideration seems to me that however you sociologists continue to talk about such areas in terms of cultural conflicts, pressures, movements of population, and so on, the essential fact is that in these areas there are continually existing centers of contagion. It certainly is true in Chicago, as I can testify, that for a generation and more the same type of resorts and places of evil attraction for youth have remained, whatever the change of population has been. Is not this the cardinal consideration?

One can consider, then, another step to be that of experimentation—the attack upon such centers of contagion, just as there have been attacks upon certain definite localized factors in the combat upon certain endemic diseases. I can hardly see how sociologists can get very far in proving even theoretical points until such practical issues are met, and, after all, is not sociology interested in developing itself as a science that has for use of its objects social control? So far as the topic of today is concerned, control of the forces that impinge upon the individual make for unfortunate personality alterations, such as we in clinical practice so definitely witness.

Perhaps the practical issues might somewhat hamper sociological study, but yet, as in medicine, the results of attempts at treatment are of prime importance for the development of the science of etiology. If, for example, in a given area one finds, as we have found, one single individual who we know has over a period of two or three years been mainly responsible for the development of delinquent trends in twenty or more other individuals, or if one finds that a single pool room is a tremendous center of contagion, then it seems clear that if such etiological factors are cleared up and good results ensue, many of such questions as you seem to be concerned with, when you see Dr. Shaw's charts, might be directly answered. Such experimental methods, through adventures in therapy, represent exactly the methods of other sciences.

CHAIRMAN WHITE.—Would Dr. Outhwaite like to say something about the cultural area situation?

Dr. Outhwaite had nothing to say on the cultural area situation.

CHAIRMAN WHITE.—Would Dr. Burgess like to speak upon this subject? He has been closely related to it.

MR. ERNEST W. BURGESS.—I should like to shift the discussion to a field which may offer possibilities of cooperation between psychiatrists, sociologists, and other groups represented here.

In the study of the workings of the indeterminate sentence law and the parole system in Illinois, I was interested in finding out how far experience tables could be worked out for predicting whether men would make good or would fail on parole. The materials used were those in the records of Illinois penal and reformatory institutions—the Illinois State Reformatory at Pon-

tial, the Illinois State Penitentiary at Joliet, and the Illinois Southern Penitentiary at Menard. The latter two institutions are for adult convicts—Joliet in the northern part of the state, and Menard in the southern part. We were able to obtain comparisons on twenty-one topics, as follows: (1) nature of offense; (2) number of associates in committing offense for which convicted; (3) nationality of the inmate's father; (4) parental status, including broken homes; (5) marital status of the inmate; (6) type of criminal, as first offender, occasional offender, habitual offender, professional criminal; (7) social type, as ne'er-do-well, gangster, hobo; (8) county from which committed; (9) size of community; (10) type of neighborhood; (11) resident or transient in community when arrested; (12) statement of trial judge and prosecuting attorney with reference to recommendation for or against leniency; (13) nature and length of sentence imposed; (14) months of sentence actually served before parole; (15) previous criminal record of the prisoner; (16) his previous work record; (17) his punishment record in the institution; (18) his age at time of parole; (19) his mental age according to psychiatric examination; (20) his personality type according to psychiatric examination; and (21) psychiatric prognosis. There were some rather interesting differences between men in these different classifications in regard to observance or violation of parole. I will mention just a few of them.

The two offenses with the lowest parole violation rates were, unexpectedly enough at first glance, "sex" and "murder." For "associates in crime," a very consistent result for all institutions was found. The number of violations tended to increase with the number involved in the crime, regularly the lowest rate where the man had no associate in the crime, to the highest rate where he had five or more associates. The violation rate of the so-called "lone wolves" was four or five times as great as that of "the gangster," the man with four or five associates. Among social types, very high violation rates were found with hoboes, with ne'er-do-wells, with drug addicts, and relatively low rates with farm boys, and a rate close to the average with gangsters. This classification of "social types" was not one given in the record, but one which we inferred from the records and which gave rather significant divergences.

Violation rates were also analyzed by cultural areas. We were interested in finding out what the violation rate would be for a man who had lived before his arrest in Hobohemia or in the criminal underworld or in the rooming house district or in the immigrant areas or in the outlying residential areas. Our findings corresponded to what might have been inferred from Dr. Shaw's statements on the zonal distribution of delinquency. Very high rates of violation by men who had lived in Hobohemia, in the criminal underworld, and in rooming house areas were in striking contrast to consistently low violation rates for men whose homes previous to arrest and commitment had been in residential areas.

Illinois has had a state criminologist longer than any other state, so the majority of the cases studied had been given psychiatric classification. There was little or nothing to show in the findings of our study that the feeble-minded individual was more likely to violate parole than the mentally able,

Indeed, in the penal institutions in the southern part of the state, where inmates come from rural districts, they seemed to be more likely to violate parole if they were above rather than below the average level of intelligence.

On the psychiatric personality classifications the egocentric had a rather distinctly higher and the emotionally unstable, a much lower, violation rate. The psychiatric prognosis of the success and failure of the inmate gave much better results than did the psychiatric classifications. For example, at one institution where the psychiatrist gave a favorable prognosis, only 20 per cent violated parole, whereas when he gave an unfavorable prognosis, 50 per cent violated parole.

This method of classification of different points of parole observance and violation perhaps is not novel. Our main objective was to get a general prediction rate by combining these points. It was now feasible to rate every man on all these twenty-one points by asking on each one in succession: Does he fall in a group that is likely to violate parole? or does he fall in a group that is not likely to violate parole? So it was possible to have a man classed on all twenty-one points as likely to violate parole or, in the other extreme, on all twenty-one points in the groups that were not likely to violate parole; or a man might be classed on ten points as likely to violate parole, and on eleven points as unlikely to violate parole or any combination of favorable and unfavorable groupings which would total twenty-one points. These favorable and unfavorable groupings were picturesquely called "white" and "black" marks. The following table was then prepared:

EXPECTANCY RATES OF PAROLE VIOLATION AND NON-VIOLATION.

Point for number of factors above the average	Number of men in each group	Expectancy rate for success or failure			
		Per cent violators of parole			Per cent non-violators of parole
		Minor	Major	Total	
16-21	68	1.5	...	1.5	98.5
14-15	140	.7	1.5	2.2	97.8
13	91	5.5	3.3	8.8	91.2
12	106	7.0	8.1	15.1	84.9
11	110	13.6	9.1	22.7	77.3
10	88	19.3	14.8	34.1	65.9
7-9	287	15.0	28.9	43.9	56.1
5-6	85	23.4	43.7	67.1	32.9
2-4	25	12.0	64.0	76.0	24.0

From this table it is seen that in a certain group of men, on the basis of past experience, only 1.5 per cent violate parole. In other groups the violation is 2.2 per cent, 8.8 per cent, 22 per cent, 45 per cent, 67 per cent, and

finally 76 per cent, break their parole agreement. This means that prediction can be applied to behavior upon parole.

The final point that I wish to make deals with cooperative research. In this study the psychiatric material had been worked out by psychiatrists, but the social data, in the main, were confined to material already in the records. It should be possible still further to increase the value of the sociological materials by original sociological research, on the group factor on behavior. If psychiatrists and sociologists were working together on the study of the inmates of institutions, it would be possible to enhance still further the value of these materials from the standpoint of the interests of both—the psychiatrist working on the individual aspects, and the sociologist working on the cultural aspects, of behavior.

The question may be raised in these penal and reformatory institutions whether it would be possible to carry on joint research work. If that could be done, it would not only have some practical significance with reference to making predictions in regard to how an individual would get on after his release into the community, but also it would enable us to probe deeper into these factors, in the constitution or in the situation, in the organism or in the culture, that make for crime.

Ever since the Social Science Research Council was established, there has been this emphasis upon cooperation among the different social sciences, the assumption being that cooperation necessarily would bring fruitful and productive results. Now it is proposed to extend this field of cooperation to include psychiatry as well as psychology. The real problem seems to be one of determining the conditions under which research develops most fruitfully; how cooperation may be of assistance rather than a hindrance. Some may say that cooperation is most fruitful when a man in one field is fully aware of the research that is going on in other fields and carries on his research with awareness of the other points of view. I am not convinced that that is not the most promising form of cooperation. But another favorable situation may be to discover certain problems where cooperation can take place with freedom of the persons representing the different specialties to carry on their own work. That seems to be a much more difficult situation to arrange, and I have taken the liberty of presenting this one case, which I know better than some others, because it would seem that here is a field in which cooperation can work successfully. Accordingly, it might be made a test case.

CHAIRMAN WHITE.—I wonder if Mr. Glueck couldn't say something to us. He is interested in this field and he is also interested in this very problem of cooperation.

MR. SHELDON GLUECK.—Mr. Chairman, Ladies and Gentlemen: I was very much interested in the piece of research that Professor Burgess and his colleagues recently published, because for quite a time I had been thinking upon the very problem which apparently formed his central interest, namely, the possibility of prognosis in the field of human behavior, and particularly anti-social behavior. As at least some of you know, I am not a behaviorist,

but a recent piece of research which I made has certainly opened my eyes to the possibilities of the purely objective, behavioristic approach, with all its limitations.

We have just completed, Mrs. Glueck and I, a very intensive piece of research on 500 ex-inmates of the Concord Reformatory in Massachusetts, covering their life history before their commitment to the institution, in the institution, on parole, and for a 5-year post-parole test period. One of my criticisms of the Illinois research is that it limited its scope, on purpose of course, to the parole history alone. But, as we all know, it is one thing for ex-prisoners to behave satisfactory while under parole supervision and quite another for them to do well for a reasonable period beyond the expiration of the supervision that is given on parole.

We divided our material into these four sections in the lives of these men; the pre-reformatory, reformatory, parole and post-parole period, and let me say that this experience showed us that without thoroughgoing verification and amplification, we might as well throw all of the official records into the waste basket. Because, it required a great deal of time in writing thousands of letters, the use of numerous fingerprints and the making of hundreds of interviews, before we could accept this information as reliable and complete. That process exploded the claims usually made in annual reports and "criminologies" that from 60 to 90 per cent of the graduates of reformatories do not commit crimes after their release. Through this thorough method of examining the criminal records of our former inmates of the Massachusetts Reformatory, we found that 75 to 80 per cent recidivated. The 80 per cent that you find in annual reports of penal institutions is therefore correct, except that it pertains to the *failures* rather than the successes.

We found also that much of the information that is found in the official records of reformatories and even of Juvenile Courts is unreliable, unless checked up to a great extent; and even our intensive process of check-up makes us feel that we have done little more than scratch the surface in the lives of our group of young offenders.

We correlated each one of some fifty-odd factors upon which we could obtain reliable information, factors that you often find in case histories of various juvenile clinics, Juvenile Courts and institutions, by the use of statistical devices, to the ultimate outcome, that is, to whether a person was a success, partial failure, or total failure, as regards his past parole conduct. These terms we defined, of course, as carefully as we could. That process indicated immediately that about half of the material that one finds in these case histories is practically irrelevant to the point of what happens to a man after he goes through the mill. It may be very relevant, it probably is relevant, to the question of the genesis of delinquency; but certainly we found that it had very little to do with a man's continuance or non-continuance in criminality during this 5-year post-parole period.

I won't go into detail as to the factors because I had not intended to speak on this subject today. Were it not for Professor Burgess bringing up the

study and this being quite pertinent, I wouldn't have discussed this particular point. But at any rate one feature was very interesting, and that is that after working out the prognostic tables whereby we could predict with some degree of certainty what would happen to a man of such and such a type if put through the reformatory and parole systems as they exist in Massachusetts today, we discovered that if one eliminated the psychiatric diagnosis and classification, one's prognostic instrument was thereby only slightly impaired. That is to say, courts not having psychiatrists but having good social workers to record only objective social data as to the prisoner's industrial habits preceding his sentence to the reformatory, the seriousness and frequency of his pre-reformatory crime, his economic responsibility, his family attitude, his type of home, and a few other data of that sort, could for all practical purposes do almost as well as if they had a psychiatrist, so far as prognosis is concerned. However, when it comes to treatment, of course we saw immediately in our cases that soundly-trained psychiatrists and psychologists, as I have always contended, are an indispensable instrument in this entire process of a sensible administration of criminal justice. We explain this rather striking fact of our prognostic instruments being almost as valuable without psychiatric data on prisoners as with such data on the ground that by and large a man's mental make-up is reflected in what he does in these principal departments of life,—in his conduct, his attitude toward his family, his industrial life, his school life, and so on; that is to say, that which is really important, that which makes a difference, sooner or later crops out in the behavior, and these "footsteps on the sands of time" that he leaves in all these departments are reflections of his mental make-up.

However, my chief purpose in mentioning this research is very pertinent to our deliberations here. One of the striking points that come out, one of the abiding impressions that we got from a careful study of these 500 cases, was that even when you have quite a thorough psychiatric study and very thorough sociological accumulation of the objective factors in a case, you are still baffled in the attempt to understand the motivations at work in that life. You can only state facts that are on the surface; you can only say what happened. But if you come to the question Why? you are struck with the fruitlessness of ordinary psychiatric diagnosis, and you are forced to the opinion that psychiatric diagnosis made on the basis of a brief examination in a courtroom and not on the basis of a continuous, long-time process that goes much more deeply into the motivations involved than the psychiatrist is able to do in his ordinary court work, is of very little value, and that what we need very much indeed is a series of studies by psychiatrists and psychologists representing different points of view but based upon a long period of observation, analysis, and interpretation.

We were hoping that we could place into our penal institutions a very eminent psychoanalyst and allow him to take only some eight or ten cases and study them over a period of some two years, meeting them perhaps three times a week, very much as the psychoanalyst does with a private patient, and carefully noting the proceedings of each day's contacts. One can't help getting the honest impression that with all this elaborate case history work

that is being done, with all the good psychiatric diagnoses and even with the occasional suggestions as to the dynamics of a case that we get, we are still only flirting with the superficialities of deep-rooted problems, and that the only way to get at this baffling thing called criminal behavior is through some form of thorough psychological analysis.

Therefore, I would like to see, as a project, the placing into some of our penal institutions, largely because our subjects are there under our control, of a number of psychiatrists and psychologists each representing different modes of approach and different techniques, to study the mental mechanisms, if you will, the motivations, conscious and subconscious, of the inmates over a considerable period of time, so that we can really dig underneath the surface.

That is the chief wisdom, I believe, that I got out of this very elaborate piece of research just completed. It simply convinced me that we are nowhere near the heart of this matter and that I would like to see, instead of the thousands of cases that we Americans of large-scale enterprise are prone to insist upon, even one case alone, in which someone would actually explain in a scientifically conclusive way, the development of a career of a certain kind, the mechanisms and forces involved, and perhaps even the inevitability of that development. That, by the way, is another item that was suggested to us,—that there seems to be a sort of a fatalism in the careers of many of these young men. Of course, hindsight is better than foresight, and it is easy to look at these histories now as end-products, and see all this. We say, "Why, I could have told you that twenty years ago!" But the question is precisely whether we could have told that twenty years ago. Can we predict today, in our juvenile clinics, what the future behavior of various types of children will be?

So I submit that as a possible project in which psychiatrists, social workers and psychologists might well cooperate. Let us be satisfied with a few human documents that really probe into the psyche of an individual and not merely indulge in the accumulation of hundreds of thousands of cases in which after all we get economic "dependency" and "marginality" and all the old tricks of the trade, together with a psychiatric and mental test label. I am all for a new departure. The time has arrived when psychiatrists and psychologists must make good their often exaggerated claims regarding the understanding control and therapy of personality and character. Only painstaking, patient research should form the basis for their claims; and I venture to suggest that on the whole the research I have in mind has not yet been undertaken.

MR. THOMAS.—Mr. Chairman, I am interested in the development of our techniques as well as in these other objectives, and it suggested itself to me that it would be desirable to put several psychoanalysts in this situation *seriatim*, to study and diagnose these cases—Freudian, Adlerian and Jungian—and then put the personality raters and the sociologists to work at studying our techniques comparatively.

MR. YOUNG.—Each one could take a series of cases and see what came out of it.

CHAIRMAN WHITE.—I wonder if Dr. Draper will say something to us about this general problem of personalities.

MR. GEORGE DRAPER.—Mr. Chairman, in the first place I must apologize for being so late, but I have been held in bed for several days, by one of my own fraternity, on account of a microbe which is not approachable, I believe, by any psychological process, although I am told now that my susceptibility was the result of some failure in emotional adjustment.

To tell the truth, I don't know why I should be here, not being a psychiatrist nor a psychologist, but a physician. The only possible connection I can imagine that could account for my presence here was the unusual opportunity of dining recently with Mr. Darrow, of Chicago, and a colleague of his from Toronto, following a radio debate on the subject of "Capital Punishment" in which they had engaged. I was as much astonished at my presence at that dinner as I am at being here today, for the subject of the debate is one with which I have little to do, and on which I have very scant information. During the course of the evening, however, the thing which interested me was that these distinguished jurists were discussing what seemed to me to be the same problem which I had heard the parents of certain young patients of mine debating at great length; namely, what would be the best form of punishment for Willie. I couldn't understand why these eminent lawyers, full-grown adult males, were discussing punishment of behavior. It seemed to me that they were spending a great deal of time on something which had nothing to do with the underlying problem of the emotional motive. I asked Mr. Darrow, in my innocence, whether any lawyers were considering (as physicians do who have to treat disease in its actuality) doing anything about studying the motivation of behavior, rather than the punishing of it; and Mr. Darrow said he didn't believe that there were any lawyers who considered that phase of the subject.

I knew, of course, that there were many psychiatrists who were studying that subject, and I had also had the pleasure of meeting Judge Olson, of Chicago, who had been attempting some such investigations, the nature of which I was not intimately informed about, but it seemed to me that the problem was essentially similar to the one which we doctors are in the presence of all the time.

Let us consider the condition of ulcer of the stomach, for example, which for years we have treated with soda bicarbonate, the stomach-tube, and finally gastroenterostomy. These procedures work pretty well for a while. But in a measure they are analogous to the bread and water diet of the prison, and the noose or electric chair. Like punishment those therapeutic efforts deal with the bad behavior of the stomach, not with the emotional and glandular maladjustments which lie back of it. In our studies at the Constitution Clinic of the Presbyterian Hospital, we have tried to disregard this thing called disease, which for so long has been looked upon as an entity. We have tried to consider it simply as the expression of a clash between a given set of environmental forces, on the one hand, and another given set of individual resistances and failures on the other. Ever since Pasteur, the eager nose and active ear and eye of the medical profession

has been turned upon the environment. I think that one of the most interesting developments from Pasteur's achievement is that having displayed an obvious external cause of disease, a tangible objective thing which the physician could attack, the medical profession has turned its attention on the environment. Very shortly after Pasteur, Emil Fischer, the physiological chemist, displayed the chemical substances which are present in the normal functions of the body and form toxic substances in the presence of abnormal functions, thus forming another element in the environment of the body. We find that cerebro-spinal meningitis only develops when a certain kind of human being comes in contact with a certain kind of organism. There is, of course, no reason why we should not turn the same kind of interested observation on that special individual which we have done on the special bacteria.

That is all we have been trying to do in the Constitution Clinic. It is a subject which has been, until recently, somewhat neglected by the present teachings of medicine. In the time of that great doctor, Hippocrates, they did not know much else than how to study people and the evidences of disease, and they did that astonishingly well. So we have been fumbling along in the dark, trying as doctors to devise some way of evaluating the individual. Now we are giving clinics to the students in which we attempt to present the patient rather than his disease.

Somebody suddenly says, "Why, that's a tall, thin man."

"Well, what else do you notice about him?"

Then they are put to it; they don't know what they see. They have never seen a man before. They have seen cases of liver disease and they have seen cases of typhoid fever, but as to having seen a human being, that is a new experience. So, little by little we find out that he has got a nose, that he has got eyes, and that his legs may be longer in proportion to his trunk than somebody whom they saw yesterday whose trunk was long in proportion to his legs. Then they notice that he smiles or that he frowns. And so, little by little, without doing anything more than look at the man, we decide that it is a man; that it is a white man, and that it is a man who reacts with environment, because occasionally he turns his head when there is a noise or smiles when some student says something amusing. Little by little that personality begins to emerge. By using the word "personality" I am afraid I am encroaching on a special field, but by the term "personality" I mean the total individual. I don't mean "personality" in the psychiatric sense.

Then we get to the point where we are able to say, "Well, being this kind of an individual, where would you expect his Achilles' heel to be placed?" Many of them have never heard of Achilles' heel, for that requires a little general cultural education which the medical student isn't permitted to have nowadays, because medicine has nothing to do with humanity. Medicine, you know, is a scientific subject and the doctor mustn't know anything except how pollywogs grow, so the pre-medical education of today is doing a great deal to prevent the doctor from knowing that he is dealing with his fellow men.

Then we tell them about Achilles' heel and they are very much surprised about that, and finally we find that this man's Achilles' heel is more apt to be in his gastro-intestinal tract than anywhere else. We have come upon that just because he is that kind of a man. Or we may find that his Achilles' heel is somewhere in his spinal column or somewhere in his central nervous system. Then we say, "Very well, being that kind of a man, with his Achilles' heel there, what sort of diseases do you think he would be subject to?"

It is astonishing that over and over again, without having had a word of history, without having had a story of the patient as to where his pains and aches are, and without having looked at his hospital chart which is lying very conspicuously face down on the table, some student will say, "Why, that man has a gall-bladder" or "That man has an ulcer of the stomach" or "That man's trouble is in his motor mechanism," and they are always either within the bull's eye or the next ring of a diagnosis.

They have the delightful experience of having the chart read to them, and they say, "We knew that all the time." The chart, you see, shows all the other side of the picture, all the laboratory experiments, the story of the man's pain under his ribs; distress half an hour after eating, and all the details of what we call clinical medicine—and the odd part is that we have found out all about what is the matter with the man just by studying what kind of a man he is.

I think your suggestion is admirable, that all we need is to illuminate ourselves on a very ancient subject by another technique. If you will look back into the literature you will find that is the technique that all the physicians of ancient times used.

In medicine we have perhaps forgotten that the only objective is the understanding of man, and I suspect that that is the problem that faces the sociologist, the psychiatrist and the criminologist. I know in clinical medicine that it is the center of the problem. And the astonishing thing is how difficult it is to dislodge the present feeling that you have to study disease, which is nothing different from behavior. Disease is only the behavior of a very special kind of man in the face of a very special environment.

That is all I have to say, gentlemen, on the subject of the relation of medicine to this problem, but it seems to me that all our interests converge on the creature man.

CHAIRMAN WHITE.—Thank you, Dr. Draper.

MR. YOUNG.—Do you study anything else about the man after you have had him up and looked over? Are you interested at all in finding any of the environmental factors after that?

MR. DRAPER.—Yes, we have been very much interested lately in studying the environmental problem of that individual. In general we might say that an average cross-section of life is pretty much the same for all human beings by and large, so far as their bacterial pressures, emotional pressures, and so forth, are concerned. As far as we can go, we try to bring out the intimate detail of the pressure which that individual has had to bear.

MR. YOUNG.—Does the social pressure ever have anything to do with these disease conditions?

MR. DRAPER.—Enormously. You take gastric ulcer, for example. We have the most astonishing percentage of gastric ulcer among taxi drivers. We began to be a little suspicious about that, so we were careful to check up on it. There is one instance which illustrates the point. One day when one of our physicians was driving in a taxi through a side street, a very beautiful Rolls Royce car backed out of the garage; there was no warning. The taxi driver put on his brakes, threw the car to one side and just avoided colliding with this beautiful machine. The chauffeur of the Rolls Royce turned around and told him in no uncertain terms what manner of creature he was. The taxi driver then crumpled up over his arms and turned around to the doctor and said, "Gee! There goes my stomach again." That interesting, unconscious bit of evidence, is one of a number of similar little episodes. These have led us to believe that the exposure to fear is largely responsible for the production of ulcers in the appropriate type of human being.

MR. YOUNG.—Suppose you had a case in which the individual had been diagnosed as gall-bladder on one occasion; on another occasion as gastric ulcer, and on another occasion as something else, and you took all kinds of fluoroscopes and x-rays, and so forth, and examined the person and got various kinds of physical measurements, and so on, and still were baffled by a case like that. Then somebody began finding out something about the family history of this individual, about the early experiences, early emotional conditions, and so on. It seems to me that we can't even stop at the man saying, "There goes my stomach again," but we have to find out the antecedents to that.

MR. DRAPER.—I have a case that I could tell you about, which would answer your question very accurately, but I fear I have already spoken too long.

CHAIRMAN WHITE.—Go ahead, Dr. Draper.

MR. DRAPER.—This patient was a professional man of 34 or 35. This case has been reported in the literature. He had attacks of perfectly terrific abdominal pain, so violent that on several occasions he had been started toward the operating room by very conservative surgeons, but each time there had been a little let-up in the symptoms so that they had decided not to operate, and then within 12 hours the thing had subsided.

It turned out, on questioning him very carefully, that every attack of this sort had followed shortly upon his getting information that someone he knew, or someone he knew about, had developed peritonitis. The attack he had before he came into the Clinic had been a severe one, and we found that preceding that attack he had met his neighbor in the morning going to work, who told him that his son that night had died of peritonitis. Within an hour or so he began to have these terrific pains. The time previous to that was during the illness and death of a distinguished moving picture hero, Rudolph Valentino, who died of a perforated gastric ulcer, as you will remember. As he read the account of Rudolph Valentino, he went into a very severe attack.

On taking the history of this man it turned out that as a boy three years of age he had suffered from a very severe stomach colic. After six or eight weeks of this, he recovered, and with his recovery there came a tremendous hunger. One of the curious phenomena of his attacks in later life, incidentally, was the fact that when his attack was over, he developed intense hunger. He told me that it was funny thing, but when this hunger came on there was only one food he wanted, and that was baked beans.

On going further into his history, it turned out that his mother had always told him at three and a half, when he got over this severe attack of stomach colic and was brought back in his high chair to sit at the family table, that it happened she had prepared baked beans for that particular meal and that he clamored for them. She refused to give them to him until the doctor said he could have them. She then mashed up two or three beans and gave them to him, and he throve after that meal.

At the age of ten, an old friend of his father's died of peritonitis in the town in which they lived, and there was a great deal of talk about the terrible agony in which this friend had died.

Those were the facts, running right back to three years.

We took him into the x-ray room and gave him a bismuth meal and we were able to see the stomach going through the normal rhythmic functions. Then under the influence of digital manipulation, increased peristaltic activity was made to take place. Then the x-ray man removed his hand from the stomach and it went back to its normal rhythmic movement. When his stomach would become quiet again following the digital manipulation, I leaned down and whispered into his ear, "Rudolph Valentino died of peritonitis," and almost instantly the stomach began to move in rapid peristalsis and soon was going into vigorous spasmodic contractions.

The patient said, "That's funny, I have got a good deal of discomfort in my stomach."

Then I said, "Well, what did I say to you?"

He said, "Well, that's right, you did mention Valentino."

Very shortly his stomach began to quiet down again. In that case we have very interesting experimental evidence as to the effect of the suggestion, and in addition to that we have those early history points which you have spoken of.

MR. THOMAS.—When Dr. Draper began to speak, I thought it was on a constitutional basis resembling Kretschmer's; that is, the asthenic type, the long man. Now the discussion has taken the direction of experience. Is it true that certain types of constitution are affected toward certain diseases by certain experiences?

MR. DRAPER.—We have begun to feel that emotional forces have exactly the same relationships to the capacities of human beings to react as bacteria have; in other words, one type of individual will react to meningococcus with the production of meningitis, while another type will be able to resist the emotion of fear without the production of an ulcer. Another type, under exactly the same fears (because there are certainly plenty of taxi drivers who don't develop gastric ulcers) will be able to support that

kind of emotional stress without danger. I think that the specificity of emotional values engages with the specificity of personality just as the specificity of bacteria does with the patient's specific natural immunity.

MR. SULLIVAN.—I find that conception rather difficult to grasp in that abbreviated formulation. I wonder if you would say a little more about the specificity of fear. I mean, we think, of course, that people differ a great deal in their superficial response to identically the same experiences.

MR. DRAPER.—Simply because we have found a number of cases in which identical or nearly identical experiences have taken place, where we will say fear is the outstanding emotion developed, and produced quite a different set of symptoms in different types of individuals. We have studied a very large series of gall-bladder cases, and none of those people, for example, have shown the same sort of reaction to definite fear experiences which you see in the asthenic type.

MR. SULLIVAN.—There is another question that seems to me of some interest at least to a large number of psychiatrists. That is, what light do your studies throw on the peculiarities shown in the choice of mental disorder, in the sense that (taking an extreme example) schizophrenic youths are frequently seen first by rhinologists or ophthalmologists or urologists, or something of that kind, for alleged ailments of the throat or the eyes or the genito-urinary tract or the gastro-intestinal tract; only later being identified as victims of grave mental disorder? Of course, in that same context I refer to the fact that some people develop hysteria with conversion symptoms and others go on with merely mental phenomena like the obsessional neuroses. What light have your studies thrown on such points?

MR. DRAPER.—None at all, because we are only dealing with somatic disease such as we have in a general hospital.

MR. SULLIVAN.—But in that hospital I think you have some schizophrenics.

MR. DRAPER.—Yes, we have many of them, but I fear we haven't recognized them. I am sure that we have continually missed cases in the general wards. I know that only the other day I was demonstrating a case of gastric ulcer to the students, in a most typical gastric ulcer individual, and a few days later Dr. Hinsie was demonstrating that same boy as a case of early schizophrenia. All of us physicians were very much discouraged by the fact that our gastric ulcer case was being further burdened by insanity, and Hinsie was very much discouraged with us because of our not having recognized a potential and dangerous schizophrenia. It seems to me that that is a very bad situation in internal medicine, and I think the sooner we recognize our limitations and try to improve our knowledge in that field the better.

I think it is very interesting that Kretschmer in his classification has drawn the same old time-honored classifications of the "long-thins" and the "short-thicks." There are any number of names for them which have come down through the ages from the time of Hippocrates, who first pointed them out. According to the experience in our Clinic, the gastric ulcer case has always been classified as the long-thin type. However, even after a psychiatrist, Dr. R. B. McGraw, came to us, we found no indication

in the gastric ulcer people of schizoid trends. The instance just mentioned was the first case of that kind found by us; yet one or two German observers of gastric ulcer maintained that they do show schizoid trends. I think your question is very pertinent to the whole discussion.

MR. WELLS.—A gastric ulcer might be one type of reaction, on the basis of that same constitution, and schizophrenia might be another.

MR. DRAPER.—I think that is quite possible. The Graves' disease people, for example, show quite a different reaction to fear because of a different constitution back of it.

MR. WELLS.—Different types of people might react to different types of disease, though it may not be reaction to fear but to some other type of emotion.

MR. DRAPER.—That, I am unable to say. Isn't criminality a symptom?

MR. WELLS.—Of course, the point is always raised that criminality is in itself such a vague conception, so far as the actual conduct is concerned, that certain types of conduct are criminal in one culture and another in another culture.

MR. DRAPER.—It depends on the fashion of the day, I suppose.

MR. WELLS.—Yes, and that would complicate the matter quite a good deal. If one could put it in a definite reaction pattern without going to a definite criminal reaction, one could go at it in a better way.

MR. DRAPER.—Of course we began with the type of fear because that was the simplest to start with, but latterly we have been wondering just how important it is. Of course, it is very important, but the other side is coming forward much more.

MR. WELLS.—That leads back in a very interesting way to the idea expressed by Jungfeldt many years ago about the possibilities of the psychogenic factor in the case of schizophrenia.

MR. DRAPER.—Don't the schizophrenics have improvement when they are passing through infection?

MR. S. T. ORTON.—It is rather unusual to see a schizophrenic respond as a manic is apt to do. You are very apt to interrupt the manic phase entirely with a high infection and fibrillary reaction, but it is not so much in the case of the schizophrenic.

CHAIRMAN WHITE.—Of course, the psychoanalysts would probably say, apropos of your gastric ulcer and your schizophrenia (using my terminology), you have an energy system here and you have broken it at one point, and you need not break it anywhere else. If he has his mental illness, he need not have his physical illness. Many people, if they did not have physical illness, would probably have to develop a psychosis.

We are back at the point where we started this morning, when I called attention to this very thing that Dr. Draper has spoken of, about the bringing together of the psychiatrist and the internist, and which Dr. Burgess spoke of, at the different level of the psychiatrist and the sociologist when he was outlining what he supposed to be the better type of situation that would develop the best research possibilities.

Of course, I believe from my experience at St. Elizabeth's that the way to develop the best research possibilities is to get the psychiatrist and the internist living in the same institution and expose each to the stimuli that emanate from the other, and then they begin to absorb the other's point of view and see something of the correlation possibilities. We have had a very similar experience in St. Elizabeth's to that which Dr. Draper was telling us about. Lewis and my present Chief of Laboratories, Dr. Freeman, have been collaborating. We have cases come to autopsy from time to time, where there has been a rather sudden death and it is not at all clear what the man died of. He may have had a pain indefinitely located in his upper abdomen or chest, and passed out before any somatic diagnosis was made. It is our practice under those circumstances to go over the whole situation at the autopsy; let everybody register his guess, and if nobody feels any degree of certainty, then say, "What is the general somatic type of this individual? If he is a phlebotome, he has certain types of possibilities that stand in the forefront. It is more apt to have been a gastrointestinal death. If he is a pyknic, it is more apt to have been a cardiovascular death, we will say." In a surprising number of cases the autopsy verified that prognosis, based upon the mental diagnosis.

We are here again into the situation of this correlation of the psychiatrist with all the social scientists, which is another one of these correlations that I have spoken about at a different level.

MR. HEALY.—To come back to Dr. Burgess, did you in working up your correlations on the parole cases as to type of individual, and so on, correlate the environment to which they went?

MR. BURGESS.—No, we didn't in this first study. The follow-up study is under way. That was taken into account with another factor.

MR. HEALY.—A common sense point that confronted us a long while ago when we reviewed the Elmira men was the fact that they went back to the same environment in which they were originally found.

MR. BURGESS.—That seems to be the case in Illinois, that they go back to the same environment.

MR. HEALY.—Wouldn't that be likely to give you a very high anticipatory figure?

MR. BURGESS.—Yes, that is what we are finding.

CHAIRMAN WHITE.—I wonder if it wouldn't be a good plan now to ask Mr. Thurstone to tell us something about his work. He has been measuring the personality types, and haven't you been doing some work on character traits, and so forth, which would be a good sort of discussion to follow this question of constitutional type?

MR. L. L. THURSTONE.—I don't know if my work on measurement of personality types is relevant here, but I will mention it very briefly.

I have been trying to extend all psychophysical methods to the measurement of social attitudes. Personally, I haven't any primary interest in social attitudes, I am not a social psychologist by primary interest, but I saw an application for the old psychophysical methods in an entirely new setting, so I proceeded to carry out the application.

We constructed some scales for putting in quantitative form the description of people's attitudes on disputed social issues, their attitudes toward prohibition and various other disputed questions. The trick is to quantify these so that we can construct a frequency distribution of attitude for a given population.

There is one experiment that has come up recently, that we are just setting up, to see if we can measure the influence of moving pictures on the attitudes of children toward foreign nations. I will have a scale of twenty nationalities and I will get the scale value for each one of these countries for a group of one thousand high school children. Then we will show these children some moving pictures in which some one country is represented in a derogatory way, and present the scale again to see whether this one country that has been described negatively moves down the scale. Then we might try the scale again on the same children after a month or two, to see whether this effect has worn off. For all I know, maybe the moving pictures have no effect at all, but it is at least one technique for investigating the effect of various social facts on the attitudes and the likes and dislikes of individuals.

I am not sure that that is relevant to our work on personality.

CHAIRMAN WHITE.—Could you give us a little idea of what the general result of those experiments were?

MR. THURSTONE.—So far we have been primarily concerned with the refinement of the instruments of measurement. I have been trying to test their internal consistency to see whether I really am measuring anything. I have criteria more rigid than those applied in ordinary correlation procedures, which I am not satisfied with. I demand that my measurements be measurements. I demand the same criterion in measurement as a physicist would. So far, my interest has been primarily with the construction of the instruments, and we are just now beginning to apply them.

I am interested in getting what I can personally from these various techniques, especially bearing on the study of personality, and I should like to suggest that as we discuss these various techniques, we might bring out the possibility of extracting from them generalizations about personality, because only to the extent that we succeed in establishing uniformities looking in the direction of scientific laws, can we ever get together effectively on these various techniques.

CHAIRMAN WHITE.—Dr. May, can't you follow this subject along a little?

MR. MARK MAY.—I am very much interested in one aspect of this whole discussion, and that is the question of bringing a great many different techniques to bear on a single problem. I was on the verge of rising to second the motion when Dr. Glueck got through speaking, and also when Mr. Shaw got through.

As an illustration of what I mean, take the question of delinquency. Delinquency is one phase of a larger problem, which in turn is a phase of a still larger problem. We have been studying in the Character Education Inquiry the question of deception in general. We have taken deceit as it exists in normal children as an object of study, trying to find out, if we can,

under what conditions children who are not delinquents, and who probably will never become delinquents, practice deception.

We have attacked the problem with a special technique, mainly a statistical technique based on testing. Mr. Shaw and the sociologists have attacked the same problem at a different level from the place where we attacked it, and now Dr. Healy suggests that the problem be attacked at still a different level by a different technique.

So the conclusion is gradually shaping itself in my mind as a result of all this discussion that we are united on a common problem. That represents our community of interest. Where we part company is on the question of the technique, partly, and partly the question of the level or the angle at which to attack the problem. It would seem to me that as we are considering the question of getting together—and this seems to be a peculiarly gregarious group—we might agree that there are certain problems or types of problems that we all might wish to work upon, but that we all be allowed freedom in attacking these problems in our own peculiar way and according to our own peculiar training.

We have said in the first volume of our report on the Character Education Inquiry that we have attacked the question of deception from the point of view of statistical methods and from the point of view of testing, because we couldn't do anything else due to our training—we were brought up that way. The only difference I can see between the sociologists and the psychologists or between the psychiatrists and the sociologists, and all the rest of us, is that we go at the same problem in a different way. Therefore, it seems to me that it is important to recognize this fact and not all try to work with the same technique but each attack the problem in his own way and then see where we come out. It requires perhaps a philosopher or maybe this liaison officer that Dr. Thomas was talking about this morning, to take all of these findings that have resulted from these various techniques, and put them together and see if they mean something, and find out the extent to which we have actually solved the problem.

It is interesting to me to see how close together we are when we do come out. For instance, Mr. Shaw has pointed out that in delinquency the associates of the boy are important. We found in our studies of deceit, at quite a different level, and by quite a different technique, that the most important single factor in whether or not a child will be deceptive in various situations is his associates. This all ties in very closely with what Mr. Shaw and the sociologists have found out, what Dr. Healy has found out in other cases, and with some of the things that Dr. Thomas was reporting this morning. So it seems to me if we get at the same problem and if we are sure that we are working on the same problem, and if we hit it on all sides with a different technique, we are almost certain to come out with more satisfactory results than if we were hit-or-miss and in the dark.

That is one part of what I had to say. The other is: I seem to be the only one here who is at least as academically interested in education, and I am very much concerned with the whole question of the relation of psychiatry and the social sciences to the problems of education, particularly

education at the college level. I was talking to Dr. Ruggles this morning about some problems in personality development in the college, and it seems to me that there is one problem which, if it is going to be solved at all, must be solved by the joint efforts of a great many people. It must be attacked in the first place by taking quite a different view of education than we have taken in the past. We are going to have to start out with a new concept of what education really means, and then when we bring together the various persons who are interested in the personality and its development, we may be able to work out eventually a technique for developing mature personalities. That seems to me is one goal, if not the major goal of education after all, because after these problems are all more or less settled, we always ask ourselves the question: What are you going to do about it? We do either one of two things. We either try to remedy the situation that exists or we try to set up a situation which will prevent the problems from recurring. Education is setting up situations so that individuals can grow and develop a mature personality under the most favorable conditions, and that to my mind is the big problem that we are facing.

MR. PARK.—Mr. May, before you sit down I wish you would relate the result of that experiment in which you found how the character traits in school children change from one grade to another.

MR. MAY.—That was rather a special part of a dishonesty study that we were making of school children. We were trying to find out the influence of teachers and their methods and their personalities upon the honesty of their pupils, and we found in one school where we tested the children with our honesty tests in two successive years when these children had two successive teachers and testing the whole group of them, the fourth, fifth, sixth, seventh and eighth grades, that as the groups passed through a certain room their honesty curves would change. The evidence seemed to indicate that subtle differences between teachers exist in the amount of honesty or dishonesty exhibited by their pupils.

Another very interesting thing that came out of this whole study was what seemed to us to be the high level of specificity of deception. We find, for instance, that a child will cheat on an arithmetic test, and in the same room under the same examiner ten minutes later be perfectly honest on a spelling test. A child may cheat in parlor games, such as Pinning the Tail on the Donkey, and may be perfectly honest in a certain type of athletic contest and not in another. That seems to indicate that when we talk about character traits as unified entities, we are perhaps committing a fallacy. We have found, however, that these honesty tests are correlated rather low, about .25, which seems to indicate that there may be some general factor that underlies them all, but the specific factors, the situational aspect is very pronounced, and the important thing about an individual, as far as his honesty or dishonesty is concerned, is the situation in which he happens to be placed at the time.

MR. KNIGHT.—It seems to me this raises an issue that has come up in many of the remarks, namely, is deception a unit, is it a definite thing that

you can talk about. Isn't it necessary to distinguish between good deception and bad deception?

I want to suggest the statement which Dr. Healy made this morning about getting farther and farther away from the view that these things which we call abnormal are any different intrinsically and categorically from the things we call normal.

MR. PARK.—It is certainly true that when an act is disapproved by society or a boy is brought into Juvenile Court for some form of delinquency, it is a totally different act after it has gone through the Juvenile Court than it was before. This disapproval doesn't make any difference. It may give him a sense of inferiority or outlaw him, have a very positive effect on his conduct, or it may do the opposite thing. It certainly makes a difference as to whether the act is approved or disapproved by the society in which that individual lives.

MR. KNIGHT.—I was just disturbed by the use of the term "deception."

MR. PARK.—In this case of deception, you would have probably the fact that in one schoolroom deception is not regarded as an improper way to behave; in fact, if you didn't deceive you would be ostracized from the group, whereas in the other case it might have a totally different meaning.

MR. MAY.—I don't think there is any human being who is absolutely and unqualifiedly honest under all conditions, and neither do I think there is any human being who is absolutely and unqualifiedly dishonest under all conditions; we are all more or less in between.

We started out not to use the word "deception" at all. We decided that we would adopt the practice of physicists who talk about watts and volts, and that we would call this Behavior "A" and that Behavior "B," or something of the sort. When we started to write the material up, it looked like such foolishness that we threw it away and used the good old words that readers could understand. As a matter of fact, I don't believe that deception is always anti-social and always bad. The trouble is that social situations are so set up as to bring the traditional virtue into deadly conflict. I think the thing that makes children deceptive in many of our conventional schools is that the deck is stacked directly against the child. We had a very beautiful illustration of that in the case of the race differences.

We made a study (for another purpose) of 3000 Russian Jewish children on the east side, New York. We noticed in checking up the results that the children whose parents came from southern Russia were much more deceptive than the children whose parents came from other parts of Europe, particularly from Germany. We were very much puzzled about that until I was talking to a young Jewish rabbi who was born in Bessarabia, and who gave me a very satisfactory explanation. He told me that before the war the Jews were so discriminated against, socially and economically (in regard to taxation, for one thing), and every other way, that the whole situation was so set up and so arranged against the Jewish race, that deception became a virtue. In order for a Jew to live at all in the southern part of Russia, he had to be more or less deceptive. The tendency to deceive became a part of their culture and was brought to America with them.

MR. FLOYD ALLPORT.—I was thinking in regard to the question of specificity that perhaps the difficulty is that we draw up our list of traits in a more or less arbitrary way and then we expect to find them as fundamental things that run through the course of the individual's life. It may be that we should think of the qualitative differences of traits. That which is the important trait in one individual may not be the important trait in another. Instead of taking your list of traits and trying to measure the individual, take the individual and measure the traits which in *that individual* might be the factor underlying his behavior. In that way it may be that we can arrive at some trait or generalized group of traits which are important in understanding that particular individual's career. In other words, it has to be more or less of an individual matter; one person cannot be put on the same yardstick with other individuals. But still we would follow the notion of a generalized trait, or some keynote or basic drive, in the individual. Certainly the psychoanalytic studies have revealed the existence of these more or less general attitudes or drives that throw more or less light on the adjustment of particular individuals.

There are several other studies that we are conducting that might be of interest. I might mention them very briefly. I hesitate to mention these because of their very tentative stage, and they perhaps don't bear as closely upon the psychiatric personality problem as some of the other researches discussed, but yet I do think that they show an attempt to correlate the methods of the psychologists and the social scientists.

One of the studies is with regard to this question of individual deviation. The problem that has troubled us a number of times today has been, What do we mean by "abnormal," the maladjusted, the anti-social? There has been a great deal of difficulty in defining these concepts owing to the variability in environment and culture. However, we can readily say that a person is *like* others or *unlike* others; that is, he is typical or atypical; and it is possible to define degrees of atypicality. We have devised scales very much cruder than those of Dr. Thurstone, though perhaps adequate for this one task, showing that there are certain persons who, on certain topics, political, religious, social, etc., will take certain attitudes fairly consistently. Now the question arises, Is an individual characteristically like other individuals throughout, or is he characteristically different? We have attacked that problem from the standpoint of the community of interest. You can apply it throughout quite a wide range of attitudes. We have a study of progress where there are thirty-six different scales covering quite a large number of general social problems, attacking different attitudes of the individual. It is proposed to find out if typicality is fairly constant; if there is such a thing. If there is, it ought to be an interesting approach to deviations of personality; that is, we can correlate this typicality index with other factors of personality through such tests and studies as we are able to use.

We have another study relating to the group and to the study of groups from the standpoint of the individual and from the standpoint of the group as a whole, in which we hope to compare psychological and sociological

concepts, and see what results if you take one attitude or the other in approaching the intra-community groups in a small community.

Finally, I might mention the study of institutional behavior, the behavior of what I might call an institutional minor. We would like to find out when it is, and how it is that children derive notions of what our social institutions are, government, the church, the school, and so on. That seems to be a very rich field of exploration that has not been touched.

Just to put the point very briefly, to show the difference of age level: I attempted to give orders to a neighbor's boy about eleven years old, and he said, "I don't have to mind you. I mind my father."

I said, "Why don't you have to mind me?"

"Well," he said, "you are not in the same family."

There was some kind of a conceptualization of his social order that seemed to play a part in his behavior.

When I got home I asked my own boy whether he had to mind my neighbor; he said, "No, I don't, but I have to mind you."

I said, "Why don't you have to mind him?"

He said, "Because I don't."

And this was just the point. He had not been conditioned by the neighbor to carry out his own words, whereas he had in my own case. Being younger than my neighbor's boy, he had as yet no abstract notion of a social institution, such as law, or the family. He therefore gave the obvious and satisfactory reason, namely, that he simply "did not have to" obey my neighbor.

We are trying to devise some little scenes that we may give through some motion pictures, standardizations that will present pieces of institutional behavior that are all twisted up and wrong, such as a robber arresting a policeman and taking him to church for trial, and so on, and then getting the reaction of children at different age levels to this particular situation.

We hope to arrive at something in the nature of a measure of their appreciation of institutional patterns and behavior. This links up in a very interesting way with what college students think about such things as fraternities; whether they regard the fraternities as entities more than as single individuals, or whether they regard them just as individuals. I think we are detecting certain interesting differences of personality that may be important, because this question was taken up in our Syracuse Reaction Study where we got the reactions of about 4000 students on different questions, and it seems that those who think in isolated individual terms have certain characteristics that make them much more like the non-fraternity student than the institutionally-minded type of person; also they are less exclusive and will rule out fewer people from their intimate association than the others will. They take different attitudes toward college administration and athletic prowess, and so on. There seems to have been a certain attitude built up which points to some kind of difference in individuals that may be worth investigating.

CHAIRMAN WHITE.—Mr. Dickinson, can't we hear something from the economic standpoint along the lines of these problems of correlation?

MR. Z. CLARK DICKINSON.—It seems to me that you need to distinguish between economic psychiatry or economic psychology in the sense of work done by the techniques of the latter sciences that has practical business value (commercial or applied psychiatry or psychology), and psychological or psychiatric work which has significance for scientific economics. Thus far we have had a good deal of opportunity to examine commercially activated research or application of these mental sciences. We have not had much opportunity to find out how, if at all, *scientific economics* is to be affected by these other disciplines, or how far the latter are to be affected by scientific economics. It has to be said immediately that a great many economists are very snippy about the noise a few are making about schemes of revolutionizing economics by the use of attention to psychology, and to a considerable extent the attitude of the majority of economists is quite right. Perhaps the most fundamental part of economics is its abstract, hypothetical science, not unlike geometry, which consists of a set of abstract assumptions, and a set of inferences worked out from them somewhat in the manner of geometry.

So long as you are engaged in that sort of activity, it is immaterial what someone else tells you about the reality of your postulates, how close they come to reality, and it is reasonable for you to say, "I stick to my abstractions; that's job enough for anyone, and we simply are unable to comprehend everything that touches our business or economic life in a complete, thoroughgoing and scientific way. We can only comprehend a scientific schematization of it, such as an abstract economic analysis gives." That is a perfectly defensible position, and it foregoes contacts with the other social sciences as well as the science of psychology and the art of psychiatry. Yet people who have studied economic matters, from the earliest times, have always had a practical interest, they have always wanted to bring their scientific generalizations as close as they could to reality. They have always been open to the accusation from opponents that they mistook their simplified scheme for a work-drawing of reality. And so, quite clearly, on the psychological side with reference to people's behavior and motives, rationality, and so forth, there is a borderline which psychology and psychiatry have cultivated and which most economists have not, with respect to which critics of the older sort of abstract economics try to show that abstract economics is much further from reality than the professors of it suppose. It is claimed, in other words, that the orthodox economists have not only elaborated their principles on a hypothetical economic man who is supposed to be perfectly self-interested and perfectly rational, but they have surreptitiously attempted to justify the old individualistic order of things. The critics allege that we need, instead, an economic policy which shall be based on a thoroughgoing, comprehensive and realistic economic science.

I say all this by way of indicating that the expression "relation between psychology and economics" is not quite as simple as it may seem on the surface. You have to discriminate between (1) practical psychology, such as is used in hiring and in working with "problem" employees, (2) a deductive sort of economics, and (3) an ideal economics that would repre-

sent God's knowledge of economic affairs as a whole. It is the latter sort of thing in which I am especially interested—in the possibility of extending the older abstract economics and the older realistic economics that dealt with such matters as money and tariffs, in various newer directions by means of hints that may be secured from people who are studying psychology, sociology, and allied topics. I will not report any recent researches in that field, but it may perhaps be useful to indicate (which has not been done here as yet) the economic inferences which have been drawn from psychology in the past, and give some notions as to how those suggestions seem to be faring down to the present time.

One such idea was suggested by Professor Ogburn at a meeting of the American Economic Association ten years or so ago. In that, he referred to the so-called economic interpretation of history that Karl Marx and the Socialists have exploited so much. One of the many possible and actual versions of economic interpretation of history is the self-interest version, that, however idealistically people may talk, they are primarily moved by what touches their pocketbooks. As Ogburn pointed out, this doctrine is revolting to substantially all people. They may believe it of other people, but they won't accept it for a minute as a picture of themselves. Then Ogburn marshalled the psychoanalytic type of evidence to show that maybe there is more in this particular economic interpretation of history than appears at first sight, because the psychiatrists have shown us how easily we fool ourselves. It may be that all of us actually act more from motives of economic self-interest than we can ever persuade ourselves that we do, because of our facility for rationalizing. I don't need to pursue that illustration further to show that it represents a meeting-ground between these disciplines that most of you represent and realistic economic science. It concerns the conformity to fact of one of the premises with which abstract economic science sets out; that is, the premise that a man's motive in business affairs is his immediate pecuniary self-interest.

Among other areas of communication between psychology and psychiatry and economic science, broadly construed, are a number relating to labor matters. All of you are familiar, no doubt, with the attempts made by the late Carleton Parker and the present Dr. Mayo, as well as several others, to interpret phenomena of labor, such as strikes and labor turnover and fatigue, with reference to psychological and psychiatric materials. I am very anxious that we should hear something from Dr. Mayo and others present, on those matters. As I was saying, it is undoubtedly familiar to all of you that Carleton Parker, in an enthusiastic way, proceeded to suggest a rather far-reaching interpretation of all sorts of labor difficulties in terms of the obstruction and repression of fundamental human instincts. He claimed that these manifestations of labor unrest are simply symptoms of psychical maladjustments, of the sort that mental practitioners are studying in other relations. One of the illustrations that Parker gave serves to bring us somewhat nearer down to date, to the sort of thing that Dr. Thomas was talking about this morning and that I had the privilege of discussing just a little with Dr. Ruggles during the lunch hour. Parker

gave his list, of course, of the fundamental human instincts, and his suppositions as to the way these instincts are balked and repressed by the conditions under which the ordinary, especially migratory, workmen have to work. No wonder the poor devils flare up, and become I. W. W.'s and so forth! One observation which Parker made, by way of re-enforcing that point, was to say that if the ordinary workman were as fortunate as the ordinary college student, all these labor difficulties probably wouldn't occur. If the worker's fundamental nature were taken care of as carefully, as thoughtfully, as is the fundamental nature of the ordinary college student, then we would not have so many labor difficulties as we do.

It is only since Parker wrote, I judge, that college executive officers have begun to realize the extent of mental abnormalities that are occurring among college students. And so that case illustrates roughly, you see, the proposition which has been emphasized in various ways and can hardly be emphasized too much, I think, among psychiatrists and sociologists and economists; that is, the necessity of observing control cases.

We have some very interesting material for the broad scientific study of labor matters coming out of psychiatric work with reference to industrial employees. For example, Macy's store has a physician or psychiatrist who studies what they call their "problem" cases, and he writes very valuable notes about such cases.*

I think it is of the greatest importance that we should somehow find means (very likely through subsidy) to see that the cases that are not considered "problems" are examined in the same way, and to find out more accurately in what respects the "problem" people, considered mentally abnormal, differ from the individuals who do not get jacked up. It seems to me that is a reflection that we might very well pass on into all sorts of other studies of abnormalities. Perhaps the majority of the materials we have had up to the time of the behavior research institutes (discussed by Dr. Thomas) has been gathered from people who felt something was wrong with themselves (or someone else thought something was wrong with them); that is, from people who had sought advice or help. Apparently it is unsafe to project a theory based on these cases over the whole mass of the population. Remember that the startling discovery that the average recruit in the American Army was inferior to the "average" of the population in mental age, was based on the inadequate criteria we possessed as to what average, normal mental age was, before those examinations were given.

I have suggested here two ranges of topics that are of interest to the broader sort of economic science, and it would be possible to talk indefinitely, no doubt, about other topics that are potentially part of the broader economic science, but I shall not attempt to do that. I will sit down with the further observation that it seems to be the case that not a great many people are actually trying to knit together economic science with the psy-

* See V. V. Anderson, *The Problem Employee, His Study and Treatment. The Personnel Journal*, Oct. 1928, 7: 203-225.

chological and psychiatric science. Doubtless it would be of some advantage if there were more of them. The sociologists are in a more fortunate position.

The foregoing illustrations refer to the materials which economic science may draw from psychiatric investigations; and perhaps we might risk the further generalization that psychiatry will be of enduring service to economics chiefly through the improvements it effects in the science of normal human psychology. Now there may be some advantage in inquiring what sort of aid economic science may conceivably render to psychiatry—either directly or through psychology.

The economic statistician and tax expert, of course, may be a useful ally to the doctors who are interested in financial aspects of defectives, insane, and persons requiring milder treatment; but these matters are scarcely concerns of the basic arts and sciences of psychiatry. A more promising lead seems to be furnished by the quasi-psychological discussions of economists, concerning value-phenomena. The principle we call diminishing utility or significance has been elaborated in ways to which psychologists have given quite inadequate attention, I think. Let some psychologists and psychiatrists of theoretical bent read P. H. Wicksteed's *Common Sense of Political Economy*, for example, and tell me whether it suggests some new vistas in their fields.

But in your enthusiasm for the economist who pursues the "economic principle"—maximum of satisfaction for minimum sacrifice—of human nature into endless paths of happy illustration, do not forget that he may be neglecting control cases—he may be generalizing from inadequate enumerations. For the purpose of ascertaining whether his subject-matter is based on the dog or the tail of human nature, try to give the economic statistician an inkling of your problems. Business life is the great laboratory of adult human reactions, and correlation-mathematics is some sort of equivalent for natural-science laboratory-controls. John B. Watson made a gesture in the direction when he cited, among evidences against the hypothesis of a strong human instinct for collecting and hoarding, alleged insurance statistics showing that only about 4 per cent of men at 60 years of age have "hoarded" capital enough to give them a living income for the rest of their expected lives.* The psychologist here was quite right as to the type of evidence which would be valuable to him; though it would require considerable economic skill to gather and interpret fairly the quantitative social information which is available. The economic-statistical student of the consumer's buying behavior can also furnish you, gradually, clues to normal and abnormal activities in that field. Chase and Schlink's *Your Money's Worth* furnishes, perhaps, a somewhat crude and superficial illustration of this approach. And if the economic student of labor problems has much to learn from psychology and psychiatry—so far as he can learn to use their materials discriminatingly—it is none the less true that the psychology and psychiatry of labor need skilled recourse to economic materials for

* *Psychology from the Standpoint of a Behaviorist*, p. 255.

supplementing their view. When Carleton Parker propounded his industrial psychosis theory as an explanation of the war-time wave of strikes and unrest, economists quite properly asked him if the unusual rise of prices might not be an important factor.

Whichever the field of our major interest, our science must aspire to explanation of both the typical and the atypical. We might say that the practical economist is chiefly interested in the typical reaction (the mass of consumers or workers is ordinarily best worth the business man's attention), whereas the practical psychiatrist or psychologist may have to make his living entirely from abnormal cases. But the theorist on each side wants a science which comprehends all points on the various distribution-curves.

The meeting then adjourned at five o'clock.

SUNDAY MORNING SESSION

DECEMBER 2, 1928

The meeting was convened at ten-forty o'clock, Dr. William A. White presiding.

CHAIRMAN WHITE.—Dr. Sullivan will make an opening statement.

MR. SULLIVAN.—The Committee, in calling this Colloquium, perhaps erred in its zeal for informality. Perhaps we should have held to our original scheme of sending you a brief statement of what we conceived to be our greatest perplexity. There were circumstances over which we had no control whatsoever that made the possibility of holding the Colloquium uncertain till the last moment. It seemed then as if there might be a distinct advantage to be derived from that necessity, to wit, that we would have utter spontaneity of views. We have heard valuable views which will be of great interest to our colleagues in the field, but we have some aspects of the central problem still awaiting, to which we must hope that this morning's session will confine itself.

The question of getting the most out of a talkfest of social scientists and psychiatrists is appalling because of the differences in conceptions. What the psychiatrist must know on the one hand, and what the social scientist must know on the other, is not that the psychiatrist can perhaps do something in, let us say, the economist's study or that the economist could do something if the psychiatrist only knew it and would give him a place (those things, perhaps important, are still in the stage of improbable dreams), but the real thing is: How is the psychiatrist to get any clew to what the economist is thinking and talking about, and how is the economist to make any discovery at all of his erroneous misapprehensions of what the psychiatrist is talking about and what the facts are behind that?

It is quite evident, I think, to all of us now that there has been an extravasation of psychiatric words into the field of several of the social sciences, and at least in the case of the members of the Committee there has been a grave raid on the language of the social sciences so far as psychiatry is concerned, and an innocent bystander looking at the literature would feel,

"Ah, the purpose of the Committee has now been accomplished; social science is now beginning to talk the psychiatrist's language, and psychiatry is beginning to talk as if it had some knowledge of culture." I feel it is most urgent that in the Colloquium we do find what each of us is talking about. Many statements much to the point were made yesterday. Yet, whether because I am developing a slightly obsessional condition or for sufficient reason, I feel that even now nothing much towards this end has happened, and I do not believe, in spite of Dr. White's statement and Dr. Thomas' and Dr. Frank's and Dr. Ruggles', in spite of the number of times that the matter has been reiterated, that it has yet really been incorporated into our deliberation.

We have in common, I think, as our point of departure, the fact that we deal with the activities of men. It is the custom of the psychiatrist to pay a great deal of attention to the actor, to his probable motivation and his possible future. It is the business of each one of the social scientists to be preoccupied particularly with certain groups or categories of this actor's acts. It is easy to say that a problem in economics must be a problem pertaining to the economic behavior of certain people and that therefore its complete solution requires attention to the individuals making up this group. That formulation not only is plausible but it sounds exciting and it is probably true.

Having made that formulation with this glorious ease that we have when we do things in language only, won't you tell us something about what is to ensue? Having the formulation, which, as I say, sounds not only plausible but probable, what, if anything, does it mean; what is to come of it? Supposing that economics is actually concerned with that phase of behavior of a group of people and supposing again that psychiatrists are interested in the motivations and peculiarities, and so on, of the people who show economic behavior, what, if anything, is to be done about it?

I am not satisfied with the developments of the Colloquium on that point. I don't know how I could tell an economist anything that would be of any real interest or importance in his life. I am afraid that an economist would find me peculiarly obtuse to any considerations that he might wish to impart to me. On the other hand, as I have said before, we could undoubtedly talk language to each other with a degree of complacency that was impossible five years ago.

Is it very important that we get to understand just what we mean, rather than merely to converse glibly together? I think it is. I don't believe that any of the social scientists have solved their problems, and I am very, very certain that the psychiatrists have not solved their problems, and we feel that one reason for the existence of a large number of unsolved problems on all hands is the insularity and narrowness of the approach to these problems, if not in fact the very imperfect formulation of the problems because of imperfect perspective. Supposing that we ourselves will not solve any real problems, none the less we are all more or less tangled up with the training of people whom we hope may solve some of these problems. If our way of doing it is not quite right, why should we not perfect our

limited views, with the hope that we can turn out people with more perspective than we have, with more understanding of many approaches than we have, and therefore with increased probability of utility as social scientists or psychiatrists?

From my side it is very evident indeed that the old way of creating psychiatrists is a total loss. Ninety-nine and the customary six-tenths per cent of the products of our modern medical schools, even though they are set up as alleged psychiatrists—I hope the Committee will not discipline me for this statement—have no more faculty for being really useful in a massive revision of the social structure than have—I don't dare call any of the social scientists by name—

CHAIRMAN WHITE.—Taxicab drivers.

MR. SULLIVAN.—Yes, taxicab drivers, except in so far as they similarly may be custodians of their fortunate or unfortunate fellows. As Dr. White has said, the number of fortunate or unfortunate fellows who need more or less custody is increasing rapidly and is an economic nuisance of the first order. We have to change that. It is imperative if we justify our existence that we bring about a change in that situation. The change must be achieved by education, popular education to support that at which we are driving, that at which we ought to be driving, but particularly by the creation of an educational system that will turn out psychiatrists properly trained to be of service in their chosen field—mayhaps similarly, social scientists.

We know that we cannot turn out really competent social psychiatrists on the sole basis of what we have learned so far in our labors; that we must incorporate in our training a good deal of what you have learned in your labors. We are quite clear on that. We are by no means so clear on how we can assimilate what you have learned. It is so easy to get plausible misstatements or plausible misapprehensions and think that we are doing something of importance, only to find that we have now become not only inefficient in the management of mental maladies, but inefficient in the management of social problems. Our zone of inefficiency has been broadened and our life has probably been correspondingly shortened, which in itself may be a blessing, but nothing particularly practical has happened.

Now, I can talk remarkably well with the sociologists, but at the same time I don't feel that I know what I am talking about, and I want them to tell me what I am talking about, so that I can correct my errors, in thinking their sort of thought. I knew Dr. Dickinson could tell me something, and he did tell me a lot. Yet I still surmise that I haven't gotten anything much of his view; that I have a lot of plausible propositions in my hand, and that after I mull them over I will be able to talk something like an economist without knowing anything in particular about economics, and while that might increase my prestige, it won't help to solve this problem that the Committee is working with.

Won't you this morning picture us as the unfortunate emissaries of psychiatry, the science which is concerned with a close study of the unusual aspects of personality in action, the less common or accepted activities of human personality? Won't you tell us where we fit into the scheme of the

social sciences, in order that we can discover at the same moment where you fit into the scheme of understanding the relatively uncommon activities of individual human beings? Don't be so concerned with the perhaps tacit threat on our part to sell you the psychiatric viewpoint. There isn't enough of it to be put on the market. But instead, tell us what you see of individuals, in your various specialties; how you can bring your things down to the individual level; how you can formulate your data so that a student of individuals can get something out of it; and having done that (which is what we want, of course), accept my promise that if you will then ask us how we can formulate our data so that it may be of some use to you, we will try to do that in exchange. I am sure I am laboring this point, but let me illustrate with "a problem in economics," such as, for instance, why do some people show a peculiar disregard for the traditions of New England economy and thrift? Why do certain members of the best New England families, instead of carrying on the family tradition, become shocking spend-thrifts? Why do a great number of those people, strewn here and there in the United States, lead to a vast expanse of dangerous credit. That is something like a problem in economics, I suppose. We meet those people in the mental hospitals and outside of them; in fact, I am one of them myself. We know a little something about why some of those people act that way, but we can't put it into words that give you any information about it, so far as I know. Some people say that when we have put it into our ever-glorious and most sanctified language, the explanation is identical with our formula for every other human being, also; that we have analyzed the thing to the point where there are no differences, and the problem immediately arises, well, why isn't everybody that way? In brief, what formulation do you need of the data that we can give you, of the spending and buying habits, and so on, of individual people that we deal with? On the particular thing that I just now attempted to formulate like an economist, I would say we find that our studies in manifestations of psychopathic personality throw a good deal of light, as we see it, but we wonder if that light is any light to you, and if not, can it be made any light to you; and if so, how?

One of the joys of the morning is seeing Professor Merriam here. Experience tells me that Professor Merriam has a good hunch as to what we are talking about, and I am rather appalled by the fact that I surmise that I know what the political scientists are talking about. That is a dangerous state of mind for anybody in this Colloquium, certainly. But it appears that political science has to do with those activities of individuals which in turn have to do with the management or domination of other individuals. That is something like the subject of political science, I hope. There again, psychiatrists have a little information on some of those people; some of it is exciting, but I am afraid that we can't formulate it so that it means much to Professor Merriam, and we would like mighty well to know from him how to formulate usefully what we know about one person's attempt to dominate another or others, or to create institutions of dominance, and so on. How can what we discover in our intimate study of the comparatively

unusual dominating activities of extraordinary individuals get at something that is really useful in the field of political science, rather than constitute merely something to talk about impressively? How, on the other hand, can the political scientist formulate his problems and his data in such fashion that it will add to the effective growth of psychiatric practice?

I fear I have labored this point terribly, but it is what we hope will really come this morning out of the Colloquium. We want to know how the group approaches can get something out of our individual approaches, and how our individual approaches can actually produce valid data for the use of the more general study of men in groups, their institutions, and so on.

I fear that it is impossible to continue the way that we did yesterday for someone's clock was far from right this morning. Let us depend more on those who have something to say about this particular aspect and get at that immediately if we can.

CHAIRMAN WHITE.—Gentlemen, you have heard Dr. Sullivan's statement. I think he has made it fairly clear that we would like very much to confine the discussion this morning, as far as possible, to the various expressions of viewpoints plus the consideration of this problem of integration of our several points of view to some useful purpose, bearing in mind, I think, what was said yesterday, that often we find ourselves tackling the same problem, which, however, being tackled at different levels, may seem superficially to be a different problem; and that we also are interested, as parents of the next generation, to see how we can pass on something that will insure the better integration of all these points of view in those that are to follow. It seems to me that those are the important aspects that Dr. Sullivan stressed and that I tried to stress in my opening statement.

Now, is there anyone whose spirit prompts him to say something?

MR. E. R. GROVES.—Dr. White, it is perhaps not difficult to answer Dr. Sullivan's question. The great majority of sociologists come to their problem with a different angle than does the psychiatrist and are therefore not interested in the object that he has in mind. They deal with social experience as mass action and attempt to generalize group behavior rather than that of the individual. Separated by a great distance from the task that confronts the psychiatrists they give little heed to the individuals who are of course casually responsible for what is called society and who alone give substance to any social generalization.

There is a minority who are close to psychiatry in their interests and they are drawing nearer to the sciences that deal with individual behavior. Their number is increasing especially among the younger students of sociology. The first attempt in the *American Journal of Sociology* to relate sociology and the psychiatric viewpoint appeared July, 1917. The article, entitled "Sociology and Psycho-analytic Psychology," was written at the suggestion of Dean Small, the editor, who stated in a letter that he doubted whether more than half a dozen sociologists had any understanding of the new movement in applied psychology and psychiatry. That same year in *The Psycho-analytic Review* was published another article entitled "Freud and Sociology." In 1920 at the request of President Dealey of the Sociological Society a

Round Table Conference on the Sociological Significance of Psychoanalytic Psychology was held and Dr. White, as he will remember, was one of the speakers. This was largely attended. The interest has continued and widened with the development of psychiatric science and in recent years has been ably emphasized by William Ogburn, Ernest Burgess, Kimball Young, Thomas Elliot, W. I. Thomas, C. E. Gehlke, and many others.

It seems to me that there are two places where the sociologists could change their point of view and draw rather close to psychiatrists. One is, if they would stop thinking of culture as some sort of substance that passes on from adult to adult, and realize that it never does that ordinarily, but passes through a child, and that in the process emotional elements appear, which the sociologists would discover so significant as to lead them into sympathy with the Mental Hygiene Movement and the psychiatrists. They would change in their attitude, in their effort to generalize human experience and realize that culture is something that has grown up with a childhood history that they are not getting at at all at present and of which they do not even conceive.

The second thing is that the sociologist should busy himself, at least occasionally, with concrete problems of social behavior. Such work is essentially an art rather than a science, but you will admit that nearly all successful psychiatrists in their concrete advice are primarily expressing art rather than science. If the sociologist has any special information at all that justifies his building up of a science, he ought to have something to contribute from the social viewpoint to the solution of practical problems of individual behavior. Instead of doing that, some sociologists appear satisfied with a study that suggests a scientific miracle; producing objectively, as they think, certain generalizations that are made up from other generalizations that never bring them at all near people. They have no clinic. Experiment is limited at best, but they have little interest in such an undertaking. Withdrawn from active part in what is technically called social work they have given practical social experience to another group of people—social workers, who resemble nurses divorced from doctors—resulting in the situation that the social workers do not come to them for any help, and as a result they do not much influence social work. It is as if nursing and medical practice had been entirely separated. It is one of the scientific tragedies, that the social workers, who are really trying to do definite practical service, have gone to psychiatry and psychology because from them they can get help, and have practically ignored sociology. I think they would frankly say that they get more from some of Dr. Healy's books than a whole ton of texts on criminology that we use in our classrooms, and rightly so, because these textbooks do not present anything at all to help anybody deal with a specific case of social mal-adjustment.

Sociology if it hopes to be taken more seriously as a science must draw closer to individual experience and become more concerned with life situations. The sociologist to save himself from satisfaction with generalization unrelated to the doings of flesh and blood people, which alone can give vitality and practical value to the abstractions, needs experience in dealing

with individuals reacting to definite social situations. This is the conviction of many sociologists and from them must come any closer approach to the problems that beset the psychiatrists.

MR. ELTON MAYO.—I don't know how wide an area Dr. Groves, the last speaker, is considering when he speaks of this as being a limitation of the sociologists. My knowledge of sociological work is, of course, limited, but it is at least not confined to this country, and, looking at the researches which we were shown yesterday and at Pitt Rivers' work on "The Disintegration of Tribal Cultures in the Pacific" and of the influence of the British administrator, and having read a book recently published by Mrs. Cavan on "The Incidence of Suicide in Chicago," I can't conceive of the remoteness and irrelevancy of sociology from the problems which were discussed yesterday, as the last speaker specified.

Turning to the problems discussed by Dr. Sullivan, I think I felt rather more, possibly as he did, that the range covered yesterday was exceedingly wide and that the immediate relevancy of all of these most fascinating studies to the investigation of personality was not immediately obvious. For example, there is a wide range of choice extending between the work suggested by Dr. Draper and that suggested by Dr. Shaw in these environs of the Loop. At the same time, if one were to leave, after hearing two such speeches as that, and try to devise *ad hoc* methods of investigating the next personality one met, it would be at least embarrassing to either the investigator or the person who was being interrogated. For example, if one were to question a lady first upon the length of her legs and to follow that immediately by asking her the question as to what suburb in Chicago she lived in, I don't believe the question of investigating personality would be illuminating to either.

So it has to go back to a question suggested quite early by Dr. Park, I believe, yesterday, and that is the general question as to how one should proceed more or less methodically to the elaboration of some possibility of a relation between these different types of research, both of which quite definitely have a bearing on what we call personality. What Dr. Park said in effect is that you cannot take techniques, methods of investigation that have been devised in the abstract and somehow or other by shuffling them together as mere techniques get a new and more comprehensive technique out of them. Of course you can't. Any inquiry is determined in its selection of the facts that offer by the nature of the inquiry that it is, and necessarily is abstract and not easily to be united with another inquiry pointed in something of the same direction but to a different selection of the facts that offer.

So what can one do? I suppose the obvious thing that resulted from the discussion was this: that at least one could institute these several techniques and point them at common fact. Some such collaboration as that was suggested. On the other hand, it seems perhaps a little more interesting to inquire just why such a conference as this has taken place—what is the dissatisfaction, what is the question of difficulty that is facing, on the one hand, the psychiatrist, and on the other hand the sociologist as he works? To some extent I think that question also was answered yesterday. Dr.

White, in his opening address pointed out that investigations which began in Europe as a research into the exceedingly intimate thought processes (whatever that may mean) of the individual, developed very speedily into an investigation of the interrelation of various members of the family. I recalled an exceedingly lucid chapter on "The Family Romance" in one of the Chairman's own discussions of the Freudian approach to this group of problems.

Beyond that, I would say, having watched the psychiatrists at work in several countries other than this, that there is a distinct difference between the psychiatric method viewed from outside in this country and viewed as you would see it in a British country. Here there is a most enormous development of what is called social psychiatric work. The investigation of the family has broadened out into an investigation of the relation of the family to the community in which it is situated. To summarize, the first original idea was a mere investigation of the extraordinary maladjustment or disorientation of an individual in terms of his own mental processes. That is the definition of Bernhard, the Englishman. This has become an investigation of the perhaps relative isolation of an individual within the family or the actualities of his relation to other members of the family, and in this country it has seemed as though the conclusion were that the family itself was something isolated from the community. At least one can say this: That in the neighborhood of the larger mental hospitals in at least two of the large cities of the United States I have seen an intensification and an increase of interest in Dr. Healy's work, for example, on the community situation, not merely the relation of the individual to the family but the relation of the family to the community in which it is situated.

On the other hand, the sociological investigation, as it was developed for us yesterday, got to a point at which these extraordinarily interesting figures with respect to the incidence of delinquency and truancy, and so on, in Chicago were under discussion, and a difference arose, apparently, between two groups of the social research people here as to whether the definite higher incidence of delinquency and truancy in the areas around the Loop was due to a breakdown, generally, of the culture—I will use that word just for a moment, if I may—or whether it was due to the institution of a new type of culture which didn't happen to fit in with the prevailing idea of the greater part of the residents in the environs, in the farther environs of the city about the Loop.

Now, it seems to me that there is somewhat of a confusion in one of those questions. It is true, of course, that ideas and practices, and so on, are communicated from one individual to another. One can call that the passage of something of a tradition. I suppose there may be a criminal tradition in that sense. But suppose that that should be considered in the same terms or at the same time or as fulfilling the same office for an individual as a culture, it is distinctly a misapprehension. If one takes either a criminal community in the Pacific as it was originally or as it is after it was disintegrated, it seems that the situation is not that you have substituted one kind of culture for another but that you have failed to do so. In other

words, as Mrs. Cavan says in her "Study of Suicide in Chicago," the essential factor that she found is a personal disorganization that follows upon a social disorganization or disintegration, call it what you will.

I am trying to hurry; this is entirely inadequate, but that leads me to another point which I wish to make, these last two definitely on the question as to how in industrial areas (which I know better than any other, but they are in a sense social) one is to devise a method of approach to the study of the personalities involved, in working in a particular department, and a study of the interrelation between individuals, the relation of each individual to the job that he is doing. This is a very general background to particular approaches to particular problems.

The psychiatrists, it seems to me, have something definite to contribute to sociology at this point. What is the question? Exactly what office does a culture, that is to say, an orderly method of living (whether it is good, bad, civilized or uncivilized I don't care) which is in no sense a breakdown or opposed to the general community idea, exactly how does such a tradition of culture communicate itself to the individual and what office does it perform to the individual in his personal scheme of living? It seems to me that that is an inquiry which has become absolutely necessary to a sociological study such as that specified yesterday, and that sociology is not equipped at all with any method to point its study of cultures of geographical areas relative to the organization or disintegration of culture; that it is not equipped with any definite method that can be pointed at an individual and yield results. No doubt the psychiatric method as it is at present is not immediately available for any such purpose. Nevertheless it is, I think one can say, most certainly the beginning of a technique, an intimate investigation of the intimate thought processes of the individual during all the periods of his growth, a study such as no other group of psychologists—I would have to broaden the term there to include a great deal more than psychiatry, of course, but a study such as no standard group of British psychologists have made for a century, to suggest the growth of the individual, a capacity from childhood to adulthood to check at each point the question as to whether he succeeds in adapting himself to his surroundings, maintaining such adaptation or not. Here is a method. Sociology, it seems to me, is demanding it as an absolute necessity for the next step forward in the development of such research as that posted across the room.

Now I am reminded of the writings of Durkheim, the Frenchman, on the subject of "Suicide." You will remember he specifies three types of suicide and he points out that suicide is an excellent index as to the degree of organization or disorganization within a community, the question as to whether its culture is successfully sustaining the individual in his ordinary domestic living. He refers to one type of suicide as egoistic and to another as the amomeic type. The differences between these, you will remember, is that the egoistic suicide, which occurs on the whole in the adolescent or young, occurs to the adolescents who have not at any time succeeded in effecting a satisfactory adjustment between themselves personally and the culture in which they are living. The amomeic, on the other hand, as Mrs.

Cavan brings out in her studies on suicide in Chicago, occurs among people when they get older, and it occurs when the social system which gave a meaning to their own private lives and particular work breaks away from beneath them and leaves them isolated as individuals and as a family. One thing that one can say about that research is that it seems to support the excellence of the illumination that the Durkheim suggestion gives us. It seems to show that in those areas in Chicago where people live in rooming houses, hotels, and the like, where there is no real organized family life, where there is no social interrelation between families, wherever this sort of thing occurs in Chicago, there you find the situation amomeic, the breaking away of the social scheme of things that should support the individual in his personal development, and a higher incidence of suicide, murder, crime, drug addiction, prostitution, pawn shops, and so on, because all these other things follow that classification.

What then is the lead for those of us who happen to be in industry, in the making of personal study of individuals? Just this: It is a great many years since Charcot gave his famous address before the French Academy of Sciences and the mordant pathological societies broke loose, but I would call your attention again to the fact that DuSole spoke of rumination, a thought process not taken account of by the psychologists of that time. Charcot himself spoke of rumination, this thought process that goes on in relaxation at times other than when the individual is actively attendant. These two began to suggest a definite relation between the ruminations of the individual, his private reflections, and his incapacity for social living and active work. Janet followed that with a study of the crises of reverie. Jung discusses undirected thinking and its enormous importance in the life of the individual; Bleuler discusses autistic thinking; Freud discusses phantasy in the life of the individual. Everywhere you look you see this factor lifted up as something of great importance, and if we are not equipped to study the aspect of this development, we are not equipped to study this question of human attitude.

In industry what do we find? We find that if the general conditions of work are not as they should be in a department, the best empirical indication we can gain of such a situation is that throughout the department, whatever the personal history of the various individuals, whatever their situation outside, you find within a very high incidence of exceedingly pessimistic reflections, exceedingly paranoid in this sense, that they are devising methods of getting even with the management and with the foremen who direct them. The most immediate symptom that offers itself is a very general and remarkable increase of pessimistic and bitter reflection throughout such a department, and it is an interesting fact also that in at least three factories under investigation where that kind of thing has been encountered to my knowledge, the improvement of conditions has led in these sufficiently normal people to an immediate, extraordinarily rapid disappearance of these bitter reflections, not merely from their reflections at work or when asked but apparently to a complete disappearance for the time being of that kind of reflection, that kind of content, from their scheme of living.

It seems to me that in studying the relation of an individual to his surroundings, or to the culture which bears him up, we cannot refrain from making at least one beginning of such a study by inspecting the active thinking of an individual not only at such times as he is concentrating but also at other times as well.

Mr. Chairman, I was going to branch off at this point into a very interesting question that has been raised by some investigators in Neufchatel and Geneva. We have tended to assume that the individual cannot concentrate by some natural right. Of course, we know that there is a definite difference in respect of the capacity an individual can develop for concentration, which can be stated only in terms of his inherited capacity, but there is a difference between individuals in respect of their capacity for attention, which can be stated only in terms of the use they have made of their reflective thinking, reverie thinking, and their opportunities for concentration in early life in childhood.

Piaget in Geneva has published four books which constitute a most interesting study of the methods by which a normal child in normal surroundings achieves the capacity for concentration and logical thinking. He terms the kind of attitudes and ideas that are formulated by the child, that operate in his living but that it was not possible for him to have developed as the result of concentration in any adult sense, syncretism, and he terms the rather astonishing non-logical character of such ideas as an irrational logic. For example, a child asked why a piece of wood floats in a pail of water will say, "It floats because it is light." Then if asked immediately why the big boat floats on Lake Geneva, she says, "Because it is heavy." She has not yet achieved the capacity for turning her attention back upon her own methods of thinking and eliminating this extraordinary participation, this mere collection of unrelated experiences together as an irrational logic.

Isn't it true that even now in industry one has to realize that in areas where the work is interesting and organized so that the worker can feel something of social function in what he is doing, where his domestic life is sufficiently secure, assured and lived amongst people for whom his family means something other than mere transient dwelling, there we find the least discontent and there we find a culture. These individuals, of course, are just as full of irrational attitudes and syncretistic thinking as anyone, because in civilization the weight of civilization and the significance of culture, as suggested by our anthropological friends, is still found in areas where the individual has not been able to develop an explicit logic, to control his thinking as thinking and to control his logic as giving systematic meaning in some direction; that wherever that occurs, an orderly method of living, a social significance to life, supports the individual and gives a social significance and function to what he is doing and atones for the real incapacity in respect of his education and the irrationality which must survive in many of his attitudes.

It seems to me at this point, Mr. Chairman, that there is a common interest both for the psychiatrist in the work he is doing, and even more so, if I might say so, for those of us who are engaged in industrial work, as I am,

or in these much more significant researches with respect to the broader sociological problems, and I suggest that at this one point at least the significance of education for the individual, the effect that it has upon his ruminations, his undirected thinking, his capacity for logical attitude and facility of attitude, is all-important; and when even in this civilization, which is perhaps more advanced than any civilization has been in education and socialization, in the United States you get the most appalling evidence of social disorganization and when our educational system has not yet advanced to the point at which it can completely put an individual in control of that pre-logic, these irrationalities of attitude and of reflection, that this is certainly at least one item that one might regard as significant for the research both in the sociological and in the psychiatric field. There is a common interest there and a common need that personality should be studied with reference to this.

I have seen for myself in my six years in this country the high significance of this research with respect to industrial situations. It is difficult to make it as objective and as systematic as it should be, but it is at least a question that can be framed, and in such a group as this if a question can be to any extent phrased, I have no doubt that here and there amongst the investigators interested a sufficiently objective and logical answer will begin to show itself.

MR. DRAPER.—Mr. Chairman, this gathering—and I say gathering advisedly—gives me the impression that it needs a doctor. My colleague, Dr. Sullivan, expressed a symptom. That leaves me in the very easy position of addressing a group of men whose subjects I am quite unfamiliar with, but in this gathering I perceive a tenderness—and I speak as a physician now—of the sociologic liver. I recognize a logorrhea from the buccal orifice of the psychiatrists, and I perceive the statisticians to be breaking out in an eruption of numbers. Now, what does it all mean? If one could visualize each member of this group substituted by another kind of worker; if one could put Michelangelo and Leonardo over there, Sir Christopher Wren over there, Bach and Beethoven over here, and any of the great painters and poets elsewhere, and then have three or four curators of great museums asking these gentlemen what would be the best way of influencing favorably the public, the architects would state their views, the painters their views, the poets theirs and the musicians theirs, but we wouldn't know much more about the best way to influence the public with art. Yet each one of those men would be contributing his best endeavors and feel that he understood how to reach them. The same is true in medicine today. The bacteriologists are doing extraordinary things for infectious diseases; the surgeons are executing marvels with their surgery; the psychiatrists are remodeling the emotional mechanisms; and yet in that great Medical Center across the way here one gets every now and then a reverberation of the noises at the Tower of Babel.

The thing has seemed to me to come down to the fact that as man's intellect finds that it can be taught new tricks, that he has forgotten that he is essentially a feeling and not a thinking organism. Now, being a feeling organism, all his physiological disturbances flow from feeling disturbances, and when physiological disturbances have carried on sufficiently long they

become tissue disturbances, and then we get organic disease. One of the things that has struck me as a possible solution to this problem rests upon the fact that, being feeling organisms, we are all trying too hard to be thinking organisms. It does seem as though the great artist is a rarer bird than the above, the average thinker. More people can learn to deal in figures than can acquire the skill of making a line that says something. When the artist was asked how he mixed his colors, you know what he said. We are trying to mix colors, but we are not mixing them with feeling. We are trying to mix them too much with the brains that the artist spoke of.

As a concrete suggestion—and I throw this out in all seriousness—I would suggest that instead of the principle of the interchange professor, which we have heard so much about in recent years, that we have really a fundamental type of interchange of professorship, and that the professor of sociology lecture in the courses on psychiatry, and that the professor of psychiatry lecture in the courses on economics, and that the professor of economics lecture in either of the other two, and that this interchange of professors, each one trained in a phase of the basic feeling reactions between people, discuss his point of view in terms of the other's feelings. It might be that in doing that each one would be surprised to find how close he was to what the other was thinking about. But when it comes to the management of the individual, it doesn't matter whether a man is trained as a doctor or a sociologist or a statistician or an economist, it depends entirely on whether he has got the touch. W. H. R. Rivers, unfortunately, died before more people knew about him, but I suspect that it wasn't his sociological knowledge or his economic knowledge or his psychiatric knowledge that made that man such an astonishing factor in the development of modern dynamic psychology and its effect upon people; I think it was W. H. R. Rivers, and I suspect that that is always going to be the case, and the nearer you can come to showing these interchange values of these different personal interests because we all follow what we follow, probably, because of something we don't know about. We all are equipped with about the same amount of teachable brains, but we hit the world and hit other people in terms of our own peculiar flare, whatever that may be, and I don't believe that any meeting of this sort will ever get any closer than that. It seems to me that this interchange idea might do something to render these meetings unnecessary because it would show everybody that anyone can do something provided a reasonable amount of knowledge in a given field is acquired, and there is, besides, recognition given to that peculiar flare which makes the outstanding figures in any field the outstanding figures.

MR. FLOYD H. ALLPORT.—Might I make a remark apropos of Dr. Mayo's talk? I was thinking that perhaps the trouble with the cultural areas in Chicago was not that there was no sustaining culture, that the culture had fallen away from beneath the individual, leaving him without certain guidance in life, but the fact that these individuals have *never* fitted into or had contact with the culture of the surrounding medium. They consequently developed a certain culture of their own. These gangs studied by Dr. Thrasher and Dr. Shaw show a certain type of culture of their own which

is quite as coherent and logical as any other culture might be, but it simply happens to be different from that of the surrounding medium. The question would be then: What culture do you want, or, How can you deal with unrelated patterns of culture? That again throws us back upon the meaning of culture in the life of the individual, and that would bring out the necessity of studying the anthropological and sociological phenomena, that is, the culture, from the standpoint of the personalities of the individuals. We should then try to see what meaning a given pattern of cultural behavior had in the lives of individuals having certain acquired traits, and certain biological and hereditary foundations.

If we take that view, we cease to regard culture as a kind of force or sustaining principle which somehow governs or coordinates the acts of individuals in society. We think of it in terms of the actual functioning of personalities as whole organisms, and if we do that, then we probably shall come to a point where we see more clearly the relation of the social sciences to the organic sciences, such as psychiatry and medicine.

In our own research we are planning to take up the question of how personalities of different types, forming in young people, take hold on the practices, conceptions, and ideals of the time in which they live, what the individual differences are, and the facility with which children of different make-up fit into the cultural or institutional life. If a possible method can be found, we hope to study also the types of institutional patterns which they would develop if left to their own resources and not affected by the habit systems which form the culture of the people in general. In that meeting point I think we see not only many important human problems from the standpoint of specific individuals, but the trend of social change and the possibilities of understanding the significance of changes that occur in the cultural level itself. We are enabled to keep in mind the phenomena at the cultural level and their meaning in *human* terms in respect to social change.

MR. MAY.—Mr. Chairman, may I just for a moment voice an inspiration which I drew first from Dr. Sullivan's opening address and later from Dr. Mayo's remarks?

About two years ago I embarked on the ambitious undertaking of trying to find out what science really has to offer on the development of the personality. I asked myself this question: What do we really know scientifically about this whole personality problem? I thought that I would try to cover as many sciences as I could, to see the contributions that each had made to the subject, and I tackled the problem first at the point of the heredity and environment problem, which is the fundamental one for education. I started with genetics, and I found that in genetics we have a lot of good information which seemed, so far as I could judge, scientific stuff. I found very valuable material in biometrics. Then I turned to anthropology, and found some pretty good information there, but not as good as in the field of genetics. Then I turned to sociology, and I found some things that I could use. I found that I could use Dr. Healy's material; I found that I could use the type of statistical data such as the Chicago people have

secured. The place where I got really up against it and had to quit, was when I turned to the whole field of individual studies of the personality reported by psychiatrists and psychoanalysts. I couldn't make head or tail out of it. I labored long over volumes of reports of case studies. I tried earnestly and conscientiously to see if I couldn't piece them together in such a way as to find out what the psychiatrists and psychoanalysts had contributed to the problem of heredity and environment. I have a feeling that they have contributed a lot, but it wasn't in a shape that I could make any use of it. I finally had to give up and say in my notes that I had found here a valuable technique.

That leads me immediately to the suggestion that Dr. Sullivan made at first, and that is this: Is there any way in which we can express the results of our scientific researches so that others can use them? Is there any common denominator to all of this work that we are doing, in which we can express all of our findings?

If we agree to work on common problems at different levels and by different techniques, as I suggested yesterday, then it would appear highly desirable that all results be expressed in more or less common terms. These terms need not always be quantation but when possible qualitation should be enumerated in such a way that it could be fitted in with the quantation.

MR. GLUECK.—Mr. Chairman, nothing has been said at this conference as yet with reference to the possible relationship of the law to psychiatry and to the other social sciences. That has been the chief field of my interest for a number of years, and I must say that although I was overwhelmed at Dr. Sullivan's lugubrious discourse and somewhat pessimistic outlook, I on the whole came up for air and tried to recollect whether there were any favorable signs on the horizon, and I think there are.

Therefore, I wish to say very briefly some of the things that indicate an attempt at a rapprochement and an interpretation of the findings of the various social sciences so that workers in related fields might begin to understand one another.

I see a number of favorable signs. The first is that in recent years some of the leading legal journals have actually asked for articles giving the psychiatric and psychological points of view toward various leading problems. That used to be something unheard of. You know that the law is steeped in tradition, that it has perhaps a peculiar logic of its own. To the legally trained mind matters of psychiatry and psychology and sociology are frequently wholly irrelevant. That is the first favorable sign, because people who attempt to write articles for these technical journals will have to so couch their contributions and ideas as to make them intelligible to lawyers, and that is quite a difficult job. However, the fact that these learned journals have opened up their pages to these other sciences indicates that the long and patient efforts of men like our distinguished Chairman, Dr. White, are at last beginning to bear fruit.

The second optimistic sign on the horizon, so far as the law is concerned, is the fact that at least in two law schools there has been perhaps a left-handed recognition, but at least some recognition of the value of,

representatives of the other social sciences in educating the teachers of law and through them the students. I point to the work at Yale Law School, under the inspiration of the young and brilliant Dean Hutchins, in actually placing on the faculty an economist and a psychologist. Columbia Law School also can boast of men like Professor Llewelyn who are attempting to bring the law closer to the other social sciences. Then I may suggest the fact that Harvard Law School has now committed itself to an Institute of Criminal Law and is contemplating the appointment of men whose interest is not only legal but also social and psychological; men who have sufficient knowledge of law to act as a sort of bridge or a channel of communication between the lawyers and the other social scientists. The law particularly has need for these catalyzers in its field. I need only mention the field of criminal law and its basic notion of criminal intent, and relate that immediately to what we have learned in reference to intent and motivation from psychology and psychiatry, and particularly, I believe, from psychoanalysis. The law of evidence is a rich field for psychologists; in fact, the law of evidence was developed as a sort of a crude common sense psychological instrument before the birth of scientific psychology. The law of domestic relations presents numerous opportunities to the sociologist and social worker. The law of persons, of course, also presents large opportunities.

So that we finally are left only with those branches of law that deal primarily with things, with contracts, with property, and so on. I wouldn't be a bit surprised if the day were not far distant when students of law would actually be taught, in connection with their law courses, the pertinent data of these other social sciences.

Now I suggest, Mr. Chairman, that a practical means of bringing about what Dr. Sullivan hopes will occur, is to extend this process of introducing as a leaven into legal faculties—and I am speaking now primarily as a lawyer—a number of representatives of the other sciences, who are also trained in the law and who in their contacts with colleagues and students can gradually introduce perhaps different points of view than those of the traditional law.

The happy consummation that Dr. Sullivan hopes for and seems to despair of cannot occur in one meeting; it cannot occur in one year, nor in one decade, nor perhaps in one hundred years. It is a slow process, and all we can do is perhaps submit the framework, the channels to facilitate the flow of progress. Things are actually occurring. For example, a recent Case Book on Criminal Law actually has in it extracts from the views of certain psychiatrists and psychologists, as to the make-up of the human mind, pointing out the fact of the interrelationship of mental processes and indicating thereby as a vivid critique that the existing laws of irresponsibility of the insane are psychologically and psychiatrically unsound. While this has only been tried out for one year and while it is difficult to put these ideas across to law students, it is a beginning, and once we have this beginning the rest will follow.

Let me point to another favorable sign upon the horizon. Consider, for example, the very interesting and suggestive piece of research made by Professor Burgess. I think one of the most remarkable features of that piece of work is the fact that there were at least two eminent lawyers involved in that undertaking. The same is true of the Cleveland Crime Survey and of the present Harvard Crime Survey, in which the lawyers are in close cooperation with sociologists and psychiatrists. Only recently I attended a meeting at which there were a number of prominent lawyers present, including the President and the Past President of the Massachusetts Bar Association, and after we presented a few papers pertaining to our researches in "criminal law," so-called out of courtesy, the President of the Bar Association arose and said spontaneously, "Well, this is news to me. Lawyers haven't got a thing to do with this problem. There is perhaps room for 2 per cent of legal learning in this field and the rest is sociology, psychiatry and psychology." When you get so-called "hard-boiled" lawyers arriving at that conclusion spontaneously, I believe that it is a healthy sign that the more or less artificial barriers between the social sciences, set up because of the necessity of specialization, are beginning to dissolve.

Therefore, I suggest that the efforts of groups of this kind should be consciously directed toward the spread of this plan of introducing social scientists, representatives of other sciences, into the law schools and at least in that field producing a leaven, a catalyzer, which it sorely needs.

MR. THOMAS.—Mr. Chairman, I think there has been a methodological misapprehension of the significance of this meeting. I think that things have transpired here which are quite adequate but are not fully appreciated; that is, this interchange should be followed by the formulation of definite steps. I would suggest one. I think it would be agreed that it is very important that these matters be studied at as low an age level as possible. There is only one good set-up in the world with reference to that at present and it is in the Child Research Institutes. I described that yesterday. I will mention ten names, if necessary, of men that you can call into your deliberations later. You could call Anderson, Carney, Landis, Gesell, Travis, and particularly Dr. May; you could call psychiatrists in, and you would find that your problems were to a certain extent identical and that there were many things to be tested out and many concrete steps which could be taken and could be controlled.

The importance of this situational work of Burgess in connection with the parole and of Shaw and his associates in these regional studies of the gang is illustrated by the fact that there is a three-year-old gang operating here in the Behavior Institute in New York, which is very significant. Then you come to Dr. Mayo's disturbances which are with reference to social tensions, and so forth, and the value of an interchange through a meeting of this type is to get points of departure for the construction of programs, and everything that has been said, and everything that is going to be said, is of great but as yet unorganized importance, and the question of the order in which different disciplines shall participate in this problem, where the economist shall come in, for instance, and where these larger questions

of how the changes or derangements of social pressure cause disintegration and breaks in the personality, those are matters for further deliberation and I don't think that the function of a meeting of this sort is anything more than to raise questions and determine points at which initiative shall be undertaken, and the first thing that I would suggest is that there should be a conference between the psychiatrists and those who are interested in the very young child, in which certain others should participate also; that this therefore should be a program-forming organization, and I am very much interested in the contributions that have been made in this meeting.

It is not to be assumed that there is a great body of knowledge to be transmitted between one another; it is to be assumed that there are problems between one another and that we ought to penetrate, and I hope myself, if I may be tolerated, to penetrate your asylums, in a visiting capacity, and inform myself more fully as to what your problems are and how they touch my problems. I feel that we have made quite an important contact here.

MR. GORDON W. ALLPORT.—Most of the social scientists represented here have been thinking and speaking in terms of uniformity. I have found in the talks thus far a tendency perhaps to overstress the uniformities. We are told about the situational determinants and we are told about statistical methodologies, and the case method has been somewhat disparaged as a scientific instrument. It seems to me that the statistical social scientists are perhaps putting their method somewhat above their problem. The natural phenomenon, the congruity and internal consistency of the personality, is neglected.

I confess I am very much disturbed by this idea of specificity that is so widespread today, because we find in it something that is working against the discoveries of psychiatry. If a man's behavior is determined by a specific situation, it means that he is not a personality, he is an automaton completely at the mercy of the environment. We cannot prophesy what he will do in a new situation; whereas the psychiatric method enables us to do precisely that thing. Congruity and internal consistency of personality bring up the question, What is a trait of personality, that abiding and enduring disposition which psychiatrists but not psychologists recognize? Of course the first question is whether there is such a thing.

Statistical procedures generally find a specificity of behavior which I do not believe is a true characterization of personality. If such procedures (correlation and the like) should reveal a general factor, there is indeed strong probability that such exists; but if on the other hand no general factors are discovered through this method, it does not mean with equal assurance that no general factors, or traits, exist. Investigators have usually taken some concept from common speech, such as accuracy, confidence, honesty, and the like, and have been surprised to find that no general dispositions of personality seem to exist to match these concepts. It is probable that their experimental conditions destined them to find specificity, and also that the general dispositions of the nervous system do not correspond to generic concepts in the English language. In short, non-statistical

methods, such as Spranger advocates in his methodological doctrine of *Verstehen* seem to be urgently needed.

It is the pattern of traits which make the *systematic congruence* of personality, and such patterns or integrations are qualitatively (not merely quantitatively) distinct in each person. Therefore the study of personality must use qualitative methods, and not be bullied by current methodological dogmas into falsifying the real problems of personality—either by looking only at the simple specific acts of persons, or by insisting upon quantification. It seems that psychiatrists proceed with the qualitative method, and that psychologists in imitation of other natural sciences use the quantitative. If psychologists would make much advance with the more complex problems of personality they too must make use of qualitative methods. It seems to me that the time has arrived to learn from psychiatry that great lesson, that case-records teach the internal consistency of personality.

MR. SAPIR.—I have been disturbed by the obvious unwillingness or hesitation of most of us to throw bridges across the chasms which separate our respective disciplines. We have hesitated to integrate our interests but it is the very purpose of a conference of this kind that we throw away all modesty and hesitation, and hazard the difficult task of seeing our various interests from a common viewpoint.

Thinking over this caution which we all share, I seem to find that the sticking point is that we will not admit what we tacitly accept at every stage, and that is this: Whether we talk about an individual as a physiological organism or about society, at the other end of the behavior gamut, what we are really talking about is *systems of ideas*. These ideas may be re-interpreted in terms of emotion or any other physiological or psychological terms we please. Even if we describe a human being from what seems to be a physiological standpoint, pure and simple, we are not really especially interested in the mere process of thus analyzing him into his lowest biological terms. If he lifts his arm, that means that he is going to strike somebody or throw a stone, and he does that because he wants to break the window of some person whom he dislikes, or he wants to strike him directly. We get down, in other words, to a specific motive, say, of revenge. So that even if we study personality from the very coldest and most objective point of view, we are more or less tacitly admitting that we are interested in some system of ideas.

Now let us take society, at the other end. As social students, we have been in the habit of stressing the idea that, when all is said and done, an individual is helpless, as an individual, in the flux of cultural history. At the beginning of a course that I am in the habit of giving, for example I try to destroy all confidence in the meaning of the "individual," only to find that I must let the individual in by the back door, as it were, toward the end of the course. But society, whatever we may say about it in our books, is actually nothing more nor less than a system of ideas, or several intercrossing systems. We may talk our heads off about marriage, for instance, but if we do not see marriage as somehow connected with the process of earning a living, being born and dying, having children, living in

peace with our neighbors, becoming personally significant in some little circle that we can call our enlarged ego, if we cannot see marriage in such a complex of meanings, it is not anything real. So that, whether we like it or not, we are really always dealing with systems of ideas, not with mere reactions, or institutions as such. Here is where the psychiatrist comes in. He is the intuitive scientist who is more keenly interested in these systems of human ideas than any other student of behavior. Therefore, I would say that while the psychiatrist probably commits more sins against common sense and fact than any other known scientist, he has the most valuable hunch of any of them, and that many a sociologist and anthropologist, while he has at his disposal the most valuable facts of all facts, frequently commits the most unpardonable sin of all sins, which is not to see those facts as constitutive of a real "personality" or "personalities."

We are all dealing, in some fashion or other, with the concept of personality. But we were careful at the start not to define personality, and perhaps it would have been a good thing if we had defined it. One may give at least five distinct definitions of personality, which are so different from each other that any one of them would have given a distinct slant to our proceedings. It is our job as a group to find out what is the working definition of personality that the psychiatrist brings us. Whether that is the same definition of personality as the sociologist finds most useful for his own purposes is quite another question. It is perfectly possible and useful to have different conceptions of personality. Let the sociologist's "personality," for instance, be what certain psychiatrists call a "persona," an individual conceived of as the mere carrier of social institutions. That is a perfectly good concept, abstracted from the whole of behavior, but it has little to do with what the psychiatrist is interested in. He is thinking of a connected system of ideas which is carried by an individual organism and which is somehow being interpreted in divers ways by other individuals, each swayed by a system of ideas which both resembles and differs from the first.

From the standpoint of the psychiatrist, society as such is not of paramount importance. Society is simply that external human force that cramps the individual. If you read Freud's work, you are always being told that society is the "censor," in other words, the thing that you have to resist in order to realize yourself. That may be an unscientific, even an irrational, point of view, but it is a significant one for all that. In any case it shows the psychiatrist's bias, which we have to recognize. On the other hand, the sociologist and the anthropologist, and I confess I sympathize with them in many ways, look upon the individual as nothing. "Who are you?" they conceive society to say to the unformed individual. "You are just a set of muscular, endocrine, and other physiological possibilities, and I, society, possess all possible meanings and values. I am going to make you into some kind of representative of the total system of ideas which constitutes my being." Obviously enough, neither point of view expresses more than a useful fiction. There is, therefore, it seems to me, a common ground of discussion in "personality," and whether we call

personality that part of the individual's functioning which has meaning, or, on the other hand, we call personality that in society's behavior patterns which can some day be translated into terms of meaning for the individual, is essentially indifferent. We arrive, therefore, at this somewhat curious, yet really necessary, conception that in the last analysis there is no conflict between the concept of "culture" and the concept of "personality," if only we make our abstractions correctly. I would say that what really happens is that every individual acquires and develops his own "culture" and that "culture," as ordinarily handled by the student of society, is really an environmental fact that has no psychological meaning until it is interpreted by being referred to personalities or, at the least, a generalized personality conceived as typical of a given society.

"Why do people resemble each other so much?" asks the psychiatrist. "Because they have all been formed out of common terms in the common matrix of socialized behavior," answers the sociologist. Why does the psychiatrist always feel dissatisfied with the sociologist when he is given this information? Because he wants to brush away all of those factors of human behavior that make the human beings of a society measurably alike, in order to find out to what extent the *given* individual is "integral," true to a certain something—he does not quite know what—that is himself. If the psychiatrist is a behaviorist, he believes that he can prove all of his theories of personality in terms of behaviorism; if, like Jung, he is a philosopher, he may read in types of personality all manner of uncanny revelation; if he is a sociologist, he has a sociological slant. But whatever he is, I think the psychiatrist deals with an unformulated conception of personality which is something like this: Here is a person who, in ways to be defined by the geneticist, by the physiologist, by the psychologist, and by the sociologist, has a definite "form." We do not really see him, we see him only as society declares him to be. We see the mask that he wears. The psychiatrist would like to take that mask off and discover what he really "is."

Obviously, we cannot get hold of the individual immediately on the fertilization of the egg. We must assume as given all the genetic determinants of personality; we will also assume all the prenatal factors; and we will assume, further, all the conditioning factors of, say, the first year or year and a half or two years of life which we cannot put our fingers on at present but which we feel are of the utmost importance. In other words, as psychiatrists, we are dealing with a human being who is essentially "formed" at the moment that society first gets hold of him. Let us, at this stage, call him the "sub-cultural personality." That is the personality, it seems to me, that the psychiatrist is essentially interested in, all later aspects of "personality" being seen as socially determined modifications of a behavior configuration which persists in maintaining itself as best it can. The psychiatrist and the social scientist, therefore, can best get together not by scolding each other, but by telling each other what aspects of behavior to consider as eliminated in their respective views. Each must teach the other what to avoid as irrelevant, and what to call the "essential personality." We

must get together, whether we like it or not, because we are already eliminating, well or badly, in ways which seem to be demanded for our particular purposes. Why not frankly recognize this differing process of elimination in the field of behavior, in order that we may steer clear of each other, recognizing the distinctiveness and the legitimacy of each other's problems?

I think that if the psychiatrist will admit that he is not so much interested, so far as his nuclear concept of personality is concerned, in what people do as in what they are, in their early-formed latencies of behavior rather than in their socially interpreted conduct, and if, furthermore, the psychiatrist will admit in speaking to the sociologist that what the sociologist is interested in is a different conception of personality, there ought to be no special difficulty of mutual understanding. I would plead for the study of actual case histories from the standpoint of an analysis from every possible point of view, ranging from the purely organismal type of interpretation up to the impersonal and abstract formulations of the theoretical sociologist and the philosopher.

MR. FREDERIC L. WELLS.—Mr. Chairman, the wide range of topics that has been covered in this conference, as it has just been crystallized by Dr. Sapir, impels me to preface whatever contribution I may be able to make by passing along a remark made by, and I think originating with, a philosophical colleague of mine at Cambridge. You all recall the little epigram which went around two or three years ago, about the specialist being a person who knew more and more about less and less. Then someone made the observation that a person with a liberal education was one who knew less and less about more and more. The philosopher points out that if you follow that first procedure to its logical conclusion, you reach the point where you know everything about nothing, and then you are a philosopher. And, according to this gentleman, who was addressing a psychiatric group, if you take the other line, you finally reach the point where you know nothing about everything, and then you are a sociologist. He didn't go on to say where a psychiatrist would fit into our picture. From one point, he might have said something about knowing oneself.

I have been for several weeks past, half drowned in the problem of categorizing personality traits from the point of view of psychiatric history taking, and for that reason I am all the more willing to put myself here quite in the position of a purveyor of techniques and to follow Dr. Sullivan's suggestion of letting you know more or less what the people in my immediate field are up to, and seeing what you can make of it.

It is quite evident that somewhere in the general scheme that we are discussing there is going to be a place for the quantitative study of mental processes. Visualize, if you care to, down here the hapless personality who is the focus of our various mechanisms of tension release, and you have here the general medical point of view as represented by Dr. Draper, then that of the psychiatrist, the special branch of medicine which is most intimately concerned with the adjustment problems of the individual, and through him the system would perhaps shade over into the psychologist, the experimental

psychologist from the point of view particularly as represented here by Dr. Thurstone and shading from there over into the sociologist's, through the medium that we have especially well represented here by Professor May and the Allports, and I think also of the work that Henry T. Moore has done in that direction in some past years. From the experimental psychologists particularly there has descended a group of techniques that we speak of as psychometrics. In some respects I fear that it is a rather unruly member of the psychological family that has at times given rise to certain behavior problems of its own, and from the point of view of experimental psychology I am rather sorry that the experimentalists are unable to take more interest in reconditioning, to use the technical term, this field of work a little more with reference to their own standards. You know pretty well the classifications into which it falls, and they are essentially the quantitative techniques which we have to offer wherever the sociologist or the psychiatrist is able to make use of them. From the point of view of the measurement of ideas as such, they are particularly represented, as you know, by the intelligence tests, and you would turn there to Gesell, Kuhlman, the Merrill-Palmer group, the work of the late Dr. Baldwin, later on to the revisers of the Binet techniques, Kuhlman again, and those later who have been interested in techniques more or less concerned with the adults, like Dr. Thurstone, who were concerned with the army methods.

From the point of view of the methods dealing with concrete material, that situation has been a little bit difficult. Dr. Healy's group has itself made quite the most significant single contribution there. The greatest difficulty we have had has been in reducing to quantitative terms (we have the principal representatives of those techniques here and I think they would agree with me in that respect) all questions dealing with the social adaptability of the individual.

My own particular interest just now is a rather narrow one. It might be formulated along two lines. First, that of improving certain particular techniques which already have a fairly valid psychometric basis but which are deficient from the point of view of reliability; that is a problem which comes to us directly from industry. They have certain definite uses to make of these techniques; they are not in a position to make reliability tests that we are, and they would like to see us do what we can in that respect. That is a problem which in itself is quite sufficient to occupy my laboratory for a good many months still. Then we have also taken other techniques which are pretty well established in psychometrics already, I think mainly from a procedural standpoint, because they were handy things to do, but are by no means fully understood so far as their interpretation goes, and we have to study those from the point of view of practice effects, of intercorrelations, and so forth.

With reference to that I happen to have with me a small group of blueprints which will serve as a symbol of the kind of thing we are up to. I don't imagine they would be particularly intelligible to anyone who isn't rather steeped in psychometric jargon. You can just circulate those blueprints around and see what they look like.

In the course of that work we have been led to a reconsideration of the problem of transfer, and it seems to me that the time is pretty well at hand for a thorough reconsideration of that topic. The elements of it seem to me to be these: That transfer within certain limits is unquestionable, and what those limits will be depends on the personality's capacity to intuit the common elements that exist between different tasks. That particular capacity is going to vary tremendously between different individuals and because it is not ordinarily very great or because the tasks haven't been selected quite with reference to that point, we have been inclined to minimize the factor of transfer. I am very sure it is quite important, and probably is more important as the mental capacity of the individual increases, and there is a lead there which if followed up with sufficient vigor might very well carry into some rather important modifications of educational procedure.

If I might close with something suggested by Dr. Sapir, which I hope will not be so general as to be irrelevant, there were a few references yesterday in the conference to the concept of value with a rather deprecatory note as something in which the social scientists were not as such concerned. I am not a social scientist myself, but I am quite sure that any apology for the use of that concept is as little necessary with them as it would be with the clinical psychologists or psychiatrists. Its function is clearly interpreted as the building up of impaired personal values. That is a thing which is implicit in any mental reconstruction, speaking quite from a descriptive standpoint. The value of behavior is implicit in any human personality. We used to be told almost axiomatically that man was a religious animal. Even the tabus that certain of our natural science colleagues affect with reference to value, are themselves a value formulation. As for us psychiatrists and near-psychiatrists, we are quite teleological, unashamed. Where we especially need the sociologist is to make us see the results of our procedures in their total effects and not limited in their reference to the particular individual at whom they are immediately directed. To enhance personal values at the minimal cost and the maximal gain to the values of other persons—that is the value—behavior of psychiatry and mental hygiene.

MR. THURSTONE.—Mr. Chairman, with reference to Dr. Sullivan's remarks, I should like to offer one very simple solution. I am pretty sure that it is a solution that will work, if we will only try it.

I don't believe that the solution is one that would meet with favor on the part of some of the disciplines here represented. My very simple solution of this difficulty is that to the extent that the contributions in psychiatry by the psychoanalysts, the sociologists and others are formulated as generalizations or attempted statements of laws, to that extent we might be able to understand each other. I think that the heart of the matter, the reason why we have failed to understand each other, is just that we have failed to generalize. Here again I may be looking at this difficulty with my own bias, but as I see it, that is the principal reason for our failure to understand each other, when we do fail to understand each other. The reason why Professor May and I and others have been uncomfortable when we tried to make anything out of psychoanalytic writing is just that. The reason why

I can understand Burgess, Shaw and some other sociologists when they explain some of their experiments, is principally that they do attempt to make generalizations. The psychoanalyst doesn't do that, and it is almost hopeless to get him to do it. If we attempted to express our conclusions in the form of generalizations that look toward the ultimate formulation of scientific laws; if we had in mind the uniformities in human nature or in society and wrote toward those as objectives, using all the technical jargon that we please in our own specialties, I believe it would be possible for a man in another specialty, another discipline, to understand what we meant. To be sure, he would have to become familiar with the concepts (let us hope that they would be defined); he would have to become familiar with the techniques of the other subject, that is true, but there would at least be some objective there; we would have that objective in common, and I predict that as long as psychoanalysts and some sociologists, some social psychologists and psychiatrists talk about their case records in endless and verbose description, with loosely defined concepts, without putting their descriptions in such a form that they can be verified by others in the spirit of science, as long as that goes on, we shall not understand each other and we shall not like each other very well.

I should point to that as the solution. Let us look for the uniformities in human nature and in society, and let us state them, and if possible, let us give evidence so that the reader can verify our conclusions. I don't agree, as one of the previous speakers said, that we should write our material out in non-technical forms so that others can understand it. That doesn't get us anywhere. Let us use our technique and be as technical as we like, and if the other fellow wants to understand it, let him learn our technique. To the extent that we carry on our experiments scientifically, we shall understand each other. I point at that as the solution of this problem.

MR. SULLIVAN.—If I might be permitted to take two minutes of the conference's time, which is pyramiding in importance as the finish draws near, I would like to ask Dr. Thurstone if I am to interpret his suggestion as meaning that the best way out of the difficulty is the abolition of psychiatry. That struck me as by far the most forceful aspect or implication of his suggestion, and I don't suppose that that is what he implied at all. Therefore, perhaps for the benefit of some of my psychiatric colleagues who will read over the proceedings of this conference, if he will be good enough to explain how psychiatry is to supply itself with the uniformities of human nature; that seems to me methodologically somewhat ambiguous.

MR. THURSTONE.—Let us be specific. Our friend Laswell has been reading a lot of the psychoanalytic literature with this in mind: He makes note of the dogmatic statements that the psychoanalyst makes here and there. They are all contradictory more or less, but Laswell pulls them out and quotes them, and he always asks this question: "Might it be possible to find out if this is so?" Suppose that a psychoanalyst claims that the second born will be a little more aggressive than the first born. Ask yourselves in every case if that is so; study one thousand cases. Take almost any one of these psychoanalytical generalizations, and it is possible, with most of them, to

make a specific common-sense inquiry with a lot of cases to see whether the generalization is true for most families. It is quite possible to do it, and to the extent that we fail to do that, psychiatry is going to continue to be in bad standing with the other members of the medical profession as well as with the other scientists, as it is now admittedly.

MR. MAY.—Mr. Chairman, that was just the difficulty I got into when I tried to use the psychoanalytic literature in studying this environment problem. If you do the thing that Thurstone suggests, that means that you are going to compile quantitative data. It seems to me that they draw plenty of conclusions and have plenty of generalizations, but it is a question of necessary data to back these things up, and the data expressed in quantitative fashion so that we can check them up.

MR. THURSTONE.—I think we can make good generalizations in science without being quantitative. We can start by counting noses, or some such simple quantitative procedure, but it is possible to describe a lot of cases, and to point out some uniformity which may have no mathematics or statistics in it at all and which may yet be rather convincing. Of course, it is a lot better if we can show it in quantitative form. Ultimately it will be. I will admit that you can be scientific and still have no mathematics or quantitative formulations. For example, I might ask Dr. Draper about his very interesting comments. I have heard about his work before. The first thing that I should want to know about that exceedingly interesting line of work is this: Is it possible for us to go to the available hospital records or to obtain sets of records so as to find out if some of your generalizations are really true? In other words, What is the type of evidence that you have for your generalizations? In how many cases of Type A do you find the phenomenon B, and in how many cases don't you, when you have a random selection to begin with? That is the sort of thing I mean. It is nothing but common sense in looking for your generalizations. I believe that that is the heart of the whole difficulty. If we get together in looking for these uniformities in nature, then we can understand each other. Otherwise we can't.

MR. YOUNG.—Mr. Chairman, it seems to me that this problem is precisely the problem that faces the clinician not only in medicine but in every other field. I happen to know that a friend of mine who was doing some eye research work was just as confused on this matter as any psychiatrist or sociologist ever was. It all comes back to the point which Dr. Thomas mentioned yesterday, that what we need here in addition to this clinical material are studies of so-called normal people, and I am very interested to hear Thurstone say that we can even do it with qualitative material.

I have been collecting for a long time, life history documents from college students; that is, the people I have at hand. I can not get life history documents from delinquent girls or boys that I see. I have a few, but I wish I had more. I have some from the ordinary college population, and some of the rest of us have some of those. I suppose if we got all these together, we would have more than one thousand cases. If we had those at hand, it could probably be checked up in many other ways. I want to attempt, this next year, to check up these life histories with other data, but

taking these case records even as they are, it seems to me that if we had a study made of those, they would throw some light on this problem of generalization and might be worth while.

I think the whole difficulty lies in the fact that we do not know how extensive these problems are. I think, even as valuable as a lot of the case studies have been, we do not know the extent to which these things are true in the general population.

So that you come back really to the problem of general social norms, and if the psychiatrist could cooperate with the sociologist and psychologist in the study not only of abnormal personality cases but also in the study of normal people, I believe a good deal could be accomplished. I have been trying for three years now to make some impression upon the University where I am, as to the need for studying the students from this angle before they get into difficulty. It seems to me that people like Dr. Ruggles and Dr. Mayo, with their set-up, could do a good deal in that direction. At the University we are studying not only the students who get into difficulty with the staff but also the normal students. If we had some analysis of cases that we have been able to adjust in normal students, who have had nervous breakdowns, it would throw light on personality adjustments of normal individuals. I wonder if the psychiatrists would ever be able to make available the psychoanalytical material that they have of people who are fairly normal, who have come to them for psychoanalysis. The data on that are absolutely unavailable as yet.

MR. MAY.—Your case histories aren't any good unless you start counting things. You must have figures as well as words.

MR. YOUNG.—I have a very strong feeling for this statistical business myself. For instance, I have even been bold enough now to attempt a study of family situations. I am sending around to social workers data on a number of factors in broken homes, asking them to rate these situations, but they simply will not respond. They say, "We can't do this sort of thing." This illustrates the difficulty of quantitative approach to case history material. If I keep on working at them maybe after a while I can get something like a standard set-up for rating home situations. I think if we take case records as they are we can go ahead and make some generalizations of them. I have a strong feeling that you never can understand human personality by what I call the cross-sectional method of statistical analysis alone.* Some of the work that has been started in the Child Guidance Clinics is going to be valuable, but we will have to wait thirty or forty years to get it and it seems to me these case histories might be utilized to advantage in the meantime if we had them upon normals as well as upon these varying groups.

MR. WELLS.—It was my notion that in this conference we would concern ourselves very specifically with the question of technique of personality

* Cf. K. Young, "The Measurement of Personal and Social Traits." *Publications of American Sociological Society*, 1927, XXI, 92-105. Also in *Journal of Abnormal and Social Psychology*, 1928: XXII, 431-42.

studies from all these various angles. It seems to me that is what we are focusing on now, after twenty-four hours of deliberation. It seems to me that the point toward which the discussion is now leading is that we have to reach a certain decision as to the types of techniques which we can use in these various fields, and that would be one of the directions which the activities of a conference of this sort should take with regard to any future plan of techniques.

MR. OUTHWAITE.—It seems to me that in part we have created here difficulties in considering personality studies that are to a certain extent unreal. Personality study, as it relates to psychiatry and to the social sciences, simply considered, is a composite view of the individual against the social background. Sociologists, if they wish to do so, can eliminate the individual largely from their writings. Certain results will follow. One gets significant figures about mass movement. The economist may do the same thing with wages, prices, international exchange, and a whole lot of economic facts that have no particular relation to personality. It is obvious that those branches of those sciences that are concerned with formalistic presentation of data of this sort are little, if at all interested, in matters of personality. There is, on the other hand, a type of economic writing that does consider the motivation of the individual as an economic entity. There is certainly a type of sociology which must consider not only the abstract formulations of social law, of ecology, of a variety of interests of the sociologist, but must also study a particular individual or a type of individual against the moving background of his time and his place. For example, studies made in Chicago of the hobo; studies made in trade unionism; studies of a great variety consider the individual, his particular social background and the more general setting of the country and place in which he finds himself. It seems to me that these aspects of economics, of sociology, even of anthropology, despite Professor Sapir's claim, have a definite application to the study of personality. Professor Sapir, I believe, took some trouble at Hanover some time ago to bring out the national or racial characteristics, if you will, and also the relationship of those national or racial faculties as they affect the expression of the individual, the individual taking on some of the external formulations of the particular social situation in which he finds himself, but expressing also in those external formulations an individual characteristic that we may consider in part his personality.

In anthropology it seems to me that some of the illuminating work that has been done considers man not only as a representative of a particular social group, such as the Ute or Cro-Magnon, but also as a kind of motivation in these tribal groups as expressed by these particular individuals. Radin has taken some pains to point out the distinction of the primitive man's philosophy expressing itself as a poet, philosopher, doctor, or other particular activity within his social setting. Clearly there are fields here in which a great volume and variety of study will throw illumination on the question of personality formation, as to the ways in which the individual expresses himself in society.

I am not skilled in psychiatry but it seems to me from the point of view of psychiatry we consider the individual and then reverse the process that I have been talking about in the social sciences, and the psychiatrist sees the individual as he expresses himself not only in formal education, in religion, in economics, but as a central focal point or as an individual point with a multiple form of expression, of which his sex activities, home life, social relationships of wide varieties are multiple forms of expression of some sort of a central reality. So that there seems to me to be an inevitable interplay. It doesn't matter whether groups like this meet or not, except as they expedite this business of inquiring as to how the individual can be seen against his background and time, whether that background and time is in one place or in a multiplicity of places. The mere fact that a man is an iron worker at this particular time and lives in a little shack in Erie, Pennsylvania, and is a Protestant, or whatever he may be, obviously doesn't express this man as an individual entity. As I see it, the group meets to facilitate this multiform inquiry into one central problem, and that central problem is the way in which the individual finds expression against the social background. I believe that we have a variety of techniques, all of which properly pursued may throw a light on our central theme.

It is clear, on the one hand, that not all branches of all sciences are concerned in this problem, but that some individuals in some branches of most of them can help the psychiatrist and can illuminate their own work by such contacts.

MR. HEALY.—I hope this gathering will not disband, simply left with a feeling that seems to have been expressed this morning, namely, that up to this time there has been no *rapprochement* of the activities of the different fields in which personality is being studied. I think I can give evidence to contradict this. The last three years we have had under way a very ambitious project that has been quietly and steadily going forward. Our objective has been to bring together in some sort of a manual the various methods of studying the individual from the standpoint of personality. A certain very well trained woman has thrown in her lot with us and has been engaged during all this period in reading for us. We have been led, of course, into consideration of many topics. They have ranged all the way from the study of the physical individual, beginning with anthropometry, to the various problems of mental life, those that have been developed by psychiatrists, clinical psychologists, social psychologists; and then we have been inevitably led into the fields of sociology, into consideration of family constellations and other relationships, social pressures, social norms, religious education, etc. All these matters bear directly upon the development of personality. The very interesting thing that has struck us in this extensive reading project is that during the past few years there really has been a distinct tendency towards the coming together of various interests with a focus upon the understanding of personality. Why, one found over one thousand articles dealing with personality examinations and measurements of the type with which the Allports and Dr. May have been especially concerned.

Instead of leaving with a pessimistic note and a feeling that there has not been much going on, I insist that there are very significant activities developing and that we have not enough appreciation of this fact because the material from many sources has not been drawn together to show us how far we really have advanced in the matter that we here are all interested in, namely, the better understanding of the human personality in the social background.

CHAIRMAN WHITE.—It seems to me that we are moving along toward a summation of the general results of this meeting very logically and very properly. I should say that the last couple of talks, and what Mr. Outhwaite said particularly, has struck somewhat of a keynote in this situation, namely, that whether we want it or not, we are in a situation of *rapprochement* already, of which there are very many evidences. What has been said by someone to be the same problem at different levels, can be said in the terms of Mr. Outhwaite to be the same problem, perhaps, in different dimensions. It doesn't seem to me any more difficult for all these various viewpoints to get together than it is for gross anatomy and histology to relate their respective points of view, and the thing that a conference of this sort can accomplish is to accept the fact that these different dimensions exist for these different problems, and then try to see how by our cooperation we can further progress.

There are a great many suggestions that have been made as to the concrete ways of furthering this progress. The fact that we are all interested in the same things, that we are all heading more or less toward similar objectives, that seems to have been brought out fairly clearly, although perhaps, as Dr. Sullivan says, we should not be satisfied with the extent to which that *rapprochement* has already gone.

We haven't heard very much from the psychiatrists. I wonder if Dr. Orton would like to say something in these last few minutes.

MR. SAMUEL T. ORTON.—I am afraid almost anything that I might say, Dr. White, would be superfluous at this stage. I do feel that there has been some tendency all the way through to overlook the fact that none of us has been quite frank in our confessions as to the limitations of our own sciences. We have heard a word here and there from the sociologists of what we mean by crimes and transgressions. We ourselves have not been quite frank, as psychiatrists, in expressing what we might call schisms. There are probably many cases where many of us working in the psychiatric field differ quite fundamentally in our philosophies, namely, the various schisms within the field of the psychoanalytic group itself.

I think also there has been a tendency to confuse psychoanalysis and psychiatry. Certainly it cannot be said that psychoanalysis is all that there is to psychiatry, and although it is a part of psychiatry today, when Dr. Thurstone criticizes the psychoanalytic method as aimed at psychiatrists, I rather resent the criticism because there are many other factors in psychiatry which are quite possible of organic control as actively as the methods which Dr. Thurstone himself is using. So that I feel one of the many things that might be of great advantage to any such conference as this is a frank

confession of our own limitations. In psychiatry, I feel myself that these are growing things; that the fact that we do have differences of opinion and frank schisms of thought in many instances is merely evidence of the fact that our science is alive and alert. It is like the situation that one sees in physics. A short time ago physics was looked upon as quite a static, inert science. Today it is one of the most alert in the group, and it is so because their concepts are different in the case of almost every physicist today. I think the same thing may be said of our psychiatric profession, and probably if we were equally frank as to our differences in all the fields that are participating in this conference today, we might hope for greater progress.

CHAIRMAN WHITE.—I suppose it is time to adjourn. Is there anything that anyone wants to say? If not, this Colloquium will stand adjourned *sine die*.

The meeting adjourned *sine die* at one o'clock.

Association and Hospital Notes and News.

FIRE AT THE NEW JERSEY STATE HOSPITAL, MORRIS PLAINS.—Just as we are about to go to press news comes of a fire at the State Hospital at Morris Plains.

There appears to have been no loss of life, as the patients directly exposed to danger were promptly removed. During this removal one or two patients, according to press reports, took advantage of the confusion to leave the hospital grounds, but they were, we understand, soon brought back.

Dr. Curry, the Medical Superintendent, estimates the loss, according to reports, as several hundred thousand dollars.

POST GRADUATE COURSE IN NEUROPSYCHIATRY AT THE COLORADO PSYCHOPATHIC HOSPITAL, DENVER.—Dr. Franklin G. Ebaugh, Director of the Colorado Psychopathic Hospital, makes the announcement that a post-graduate course in neuropsychiatry will be given at the hospital, and the out-patient clinic of the University of Colorado Medical School from July 1 to 31, 1929.

The instruction will be given by the Staff of the Colorado Psychopathic Hospital and the out-patient department of the medical school and the heads of the departments of Psychiatry, Neurology, Internal Medicine, Pediatrics, Clinical Pathology, Neuropathology, Biochemistry, etc., as follows:

Clinical Psychiatry, Psychopathology of Childhood, Mental Hygiene, Lectures, Clinics, Ward and Out-Patient Work—Drs. Ebaugh, Johnson, Woolley and Fox of the Colorado Psychopathic Hospital Staff.

Clinical Neurology—Drs. Moleen, Delehanty and Work.

Mental Testing—Dr. Fox.

Internal Medicine—Drs. Meader, Cunningham and Kemper.

Neuropathology—Dr. Johnson.

Serology—Dr. Mugrage.

Biochemistry—Dr. Lewis.

Neuroanatomy—Dr. Kingery.

Neuro-Ophthalmology—Dr. Finnoff.

The fee for this course will be \$100.00. A certificate, on satisfactory completion, will be given from the University of Colorado Medical School. Only candidates having an M.D. degree are eligible to take this course. Registration June 30, 1928.

Book Reviews.

Creation by Evolution—A Consensus of Present-Day Knowledge as set forth by leading authors in non-technical language that all may understand. Edited by FRANCIS MASON. Foreword by HENRY FAIRFIELD OSBORN. Introduction by SIR CHARLES SCOTT SHERRINGTON. (New York: Macmillan Co., 1928).

This book contains a number of chapters by eminent scientists, each chapter being written by a different author who is a recognized authority on the subject. The purpose of the book is to demonstrate conclusively that the evolutionary theory has passed the stage of a hypothesis and is now generally accepted by all leading scientists. In general the book lives up to its purpose.

A number of the chapters are of special interest to the psychiatrist. The titles of these chapters and their authors are as follows: Embryology and Evolution by Conklin; Vestigial Organs by Parker; Evolution of the Brain by G. Elliot Smith; The Human Side of Apes by Samuel Jackson Holmes; Progress Shown in Evolution by Julian Sorrell Huxley; and Mind and Evolution by C. Lloyd Morgan.

There is a good deal of repetition and overlapping as might be expected. There is also at times definite disagreement between the authors, as when McBride argues that the inheritance of acquired characteristics has been shown by experimental work on the salamander and that this is proof of the evolutionary theory.

Although in general the book can be understood by the average reader, there are parts which are not easy for any one without biological training.

The book can be unhesitatingly recommended as an authoritative and convincing description of Evolution. It is hoped that it will be widely read and will serve to offset some of the propaganda directed against the teaching of Evolution.

KARL M. BOWMAN,

Boston Psychopathic Hospital.

Psycho-Analysis and Children. Introduction to the Technic of Child Analysis. By ANNA FREUD. (New York and Washington: Nervous and Mental Disease Publishing Co., 1928.)

The old saying "a child should be seen and not heard" betrays the attitude of a generation that, because of its own fears, evaded its obligations to the inner life of the child. This has been superseded by the general attitude today, which is one of unprejudiced observation of what the child does

and says. The inadequacy of the child's verbal expression, however, makes it necessary to find other ways of discovering what it thinks. Science has taught us to regard impartially all the data in an experiment and we are attempting to apply this scientific attitude to the inarticulate child. But few experimenters have so far had the courage to use any methods, aside from the general educational ones, to probe the inner life of the child, even after these educational methods have failed.

It is worth repeating that according to the dictionary, education means the act of leading out, and in this etymological sense psycho-analysis is an educational process. Education has, however, a secondary function which has perhaps displaced its primary function, namely, repression of the instincts and sublimation of them to higher aims. But psycho-analysis has retained both purposes of education, whereas education, in its generally accepted sense, has lost its primary significance of "leading out." Its main object nowadays is to transmit culture by repression. Psycho-analysis has reinstated the primary aim of education for those individuals who have not been able to accept the secondary educational aims without conflict.

In the small volume, "Technic of Child Analysis," Frl. Anna Freud describes her experience with ten protracted analyses of children ranging from the ages of six to eleven. Professor Freud himself, early in his career, paved the way for future child analysis. Dr. Von Hug-Hellmuth and Mrs. Melanie Klein have contributed most in this field. In discussing the technic of child analysis, Frl. Freud has compared her method particularly with that of Mrs. Klein and with adult analysis.

The differences in opinion between Mrs. Klein and Frl. Freud may be left to them and other child analysts to resolve, for they are purely of a technical nature. The significant thing is that both bear in mind the fundamental discovery of psycho-analysis, namely, that unless the unconscious is reached the problem is not altered at its source. Both Mrs. Klein and Frl. Freud agree that verbal free association as it is employed in adult analysis and which is, so to speak, the backbone of the analytic sessions and the road to the unconscious, cannot be depended upon in child analysis. Both have found substitutes for verbal free association for arriving at the unconscious content of the child's mind. Frl. Freud cites dreams, day dreams, continued stories, drawings and other devices that aid her in interpreting the unconscious wish and in bringing it to consciousness.

She has found it necessary to institute a period preparatory to the actual analysis. The object of this preparatory period is to gain the child's confidence in the analysis and the analyst, to establish a close attachment between the child and the analyst for the purpose of carrying through to a conclusion the difficult periods of analysis which are to follow, and further to produce in the child an insight into his illness and thus create a desire to be analyzed. The child is thus compelled to face his problem and consciously to assist in searching for its origin. This is certainly contrary to the general practice with problem children in which the child is usually at a loss to know what it is all about or what the result will be. Frl. Freud cites several instances of the child's spontaneous formulation of his problem.

The following instance shows how a boy who projects his own problem on to a dog, indicates his confidence in the analyst, his desire to get well and his insight into his illness. Frl. Freud writes: "My bad ten-year-old, whom I have described in such detail, in a later period of his analysis got into a conversation in the waiting room with one of my father's adult patients. The latter told him about his dog who had killed a chicken and that he had had to pay for it. 'That dog should be sent to Freud,' said my little patient; 'he needs analysis.' The man later expressed his disapproval. 'What a queer idea of analysis that youngster has. There was nothing the matter with the dog. It wanted to kill the chicken and it did so.'" But Frl. Freud adds, "I knew exactly what the youngster meant by it. He must have thought: 'Poor dog, he would so like to be a good dog and something in him forces him to kill chickens.'"

The actual analytic work of liberating repressed material by removing unconscious resistance, of modifying the super-ego and strengthening the ego, via the transference, follows the preparatory period. A serious discussion of the transference in child analysis as compared with the transference neurosis in adult analysis has been provoked among psycho-analysts by this book. Although Frl. Freud speaks of her work as a combination of education and analysis or a "wild" form of analysis because of the difference between it and adult analysis, it must be remembered that she is speaking to a group of specialists who employ analysis in its purest form, and therefore that to them any deviation from the strict technic calls for justification and explanation. But despite this fact, her work, as described, bears a closer relation to analysis than to education. All the educational aids are means toward the major work of analysis and are not ends in themselves. They are used not for purposes of repression but with the object of bringing the repressed material into consciousness under controlled conditions—the analytic hour—so that ultimately the correct repression may be made.

One cannot discuss children without meeting the problem of the parents, sooner or later. Again a situation which does not exist in adult analysis is created, and Frl. Freud has come to the conclusion that she would not undertake an analysis of a child whose parents had not been analyzed or were not capable of complete cooperation. This would certainly be an ideal condition but perhaps it is not always necessary or practicable.

And despite all the added difficulties of child analysis, Anna Freud believes it to possess great advantages over adult analysis. For "unlike the adult, the child has not yet built up his entire future life, nor chosen his career on the strength of his abnormal development, nor established his friendships on this basis, nor entered into love relationships on this foundation which terminates in identifications and thus influences the development of the ego." She says further, "I believe despite all the difficulties enumerated . . . we can attain improvements, and recoveries of which in adult analysis we can not even allow ourselves to dream." One gains the impression from this short book that the child analyst should know first her adult analytic technic and should know children educationally as well as

analytically. A most significant statement summarizes Frl. Freud's attitude. She concludes by saying, "But one must always be fully aware of what one is doing."

The clear presentation leaves no doubt that Frl. Freud knows and is fully aware of what she is doing. Her modified analytic technic is true to the fundamental principles of psycho-analysis and she therefore can contribute much to the question of the analysis of children, to education in general, and to our knowledge of the inner life of the child's "unconscious" in the making. It is an "active therapy"; not a wild one.

ROSETTA HURWITZ,
New York.

Lectures in Psychiatry. By WILLIAM A. WHITE, A. M., M. D. (New York and Washington: Nervous and Mental Disease Publishing Co., 1928.)

One of the important annual events of the Middle Atlantic District is the course of lectures primarily for the Naval and the Army Medical Schools given by the Superintendent of St. Elizabeths Hospital. For many years past these graduate students and others who were fortunate enough to participate as audience have distributed the fame of their teacher. Some of us who have equal "opportunities" in the shape of from seven to fifteen hours in which to convey to under-graduate and graduate students a coherent insight into psychopathology may well envy the reputation which Dr. White's course enjoys.

The book under review is practically a verbatim report of the twelve lectures covering the subject of the major psychoses. Its arrangement reflects the experience of the author, and is one of the most gratifying that has come to this reviewer's attention. With an introduction calculated to impress upon the novice the futilities of metaphysical speculation concerning the nature of mind and its disorder, and to introduce the concepts of the total organism and the total (and largely inter-personal or social) situation, Dr. White proceeds to discuss the Situation Psychoses. Representing as these do more or less clear-cut deviations from the life process pre-existing exposure to some very severe stress, and being made up in most cases of comparatively simple dynamics, the usual situational psychosis provides an excellent bridge for the student from the "normal" to the disordered.

The next topic discussed is that of Paresis. "The situation psychoses . . . are precipitated by the stress of the situation in which the individual inevitably found himself [and] the content of the psychosis is dictated largely by the environment, but the mechanism of the psychosis depends on the type of personality, the weak lines in the personality along which that personality split. The same thing is true in a general way in General Paresis. We have all types of mental symptoms in paresis. . . . The personality breaks along the line of least resistance, and the mechanism of the psychosis that has developed as a result of the [luetic] infection is dictated by the type of the personality. The content of the psychosis, again, is more

or less taken from the environment." The malaria treatment is discussed, a graph being given to show the remarkable effects in a group of 103 patients who have been under observation for more than three years.

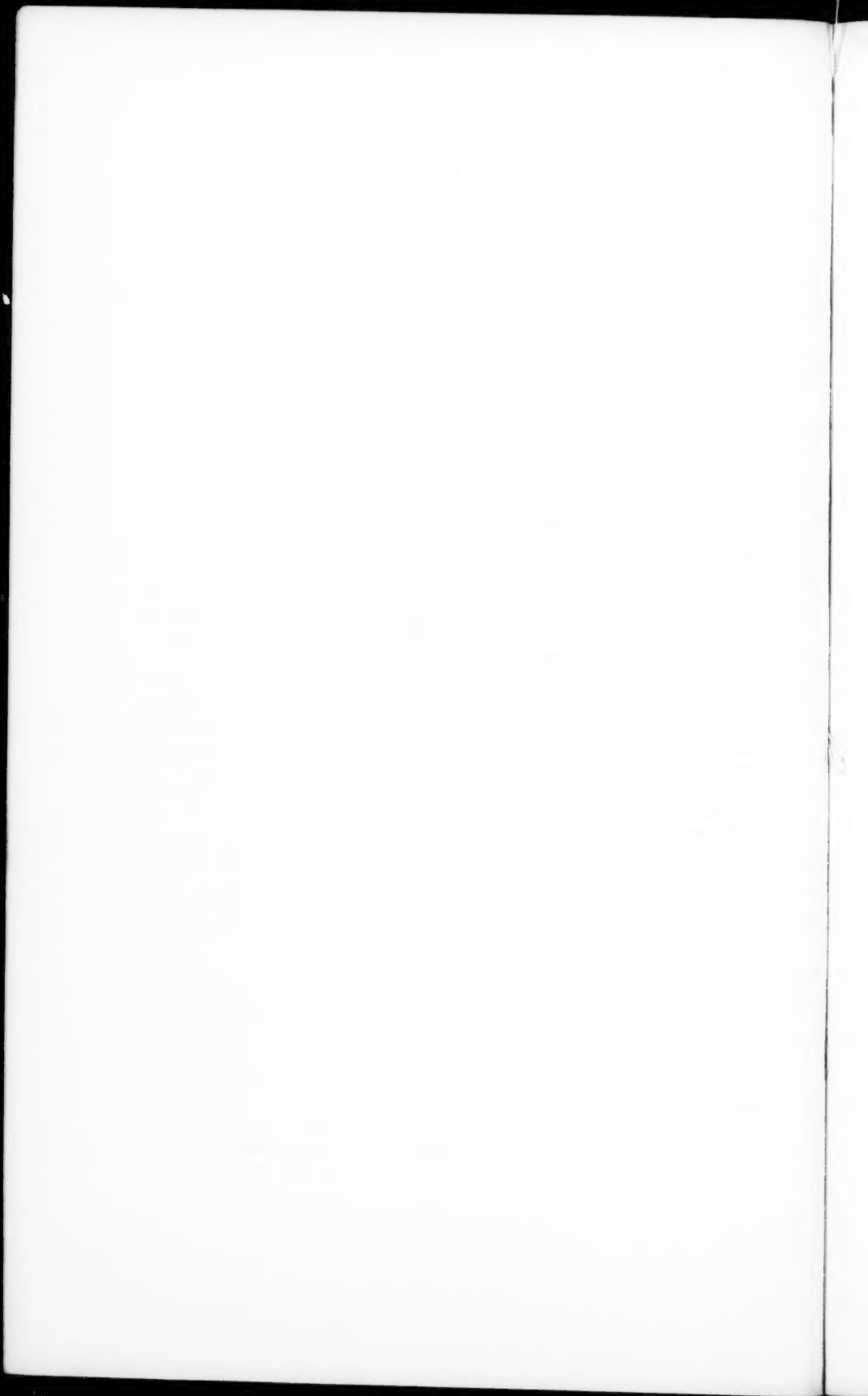
Mental Deficiency is the next subject considered. This is followed by a discussion of Epilepsy. It is to be noted that in taking up each of the major disorder groups the Professor illustrates his points by the presentation of patients the previous history of whom is conveyed by brief and well written abstracts.

Manic-Depressive Psychosis, followed by Involitional Melancholia, give opportunity for considerable discussion of the analytic and the constitutional conceptions.

Lecture X is given over to Paranoia. Lectures XI and XII consider Dementia Precox. In the latter the "un-psychological" character of the disorder is stressed, being explained on the basis of regression. Projection accounts for the cosmic characteristics of the psychotic experience. "The paranoid psychoses . . . are essentially compensatory, whereas the hebephrenic . . . is essentially non-compensatory or decompensating, the catatonic essentially defensive in a certain way." "The hebephrenic is an individual who comes in conflict with some necessity of adjustment to the world of reality and fails. . . . The catatonic has a way of running away. The catatonic is able, when he is successful, to ward off certain undesired intrapsychic components. . . . He has made a certain kind of amputation as it were, and therefore when he gets well he gets well with a certain amount of defect . . . a certain kind of change in the personality. . . ." The subject of constitution type is the final consideration under this heading.

We have in this volume an attempt—a singularly successful attempt—to lay before the novice a decidedly tangible frame of reference for psychiatric thinking. The book should enjoy wide popularity in the medical school. It is a timely contribution, the more in that it is adjusted so nicely to the current requirement of presenting our most intricate subject in a fantastically brief space in the curriculum.

HARRY STACK SULLIVAN, M. D.,
The Sheppard & Enoch Pratt Hospital.



SUBJECT INDEX

NOTE.—Abbreviations: (Abs.) denotes an abstract, (Ed.) an editorial note, (Obit.) an obituary, (Rev.) a book review.

- Abortion, The Induction of, in the Treatment and Prophylaxis of Mental Disorder; J. R. Lord (Abs.), 589.
- A Consideration of the Acute Psychoses as Reaction Types; Charles R. Ball, 479.
- Adrenalin Blood Pressure Curves, the, in Dementia Præcox and the Emotional Psychoses; Leo Kanner, 75.
- Age, Developmental; Paul Hanly Furfey, 149.
- A Manual of Individual Mental Tests and Testing; Augusta F. Bronner, William Healey, Gladys M. Lowe, Myra E. Shimberg (Rev.), 595.
- Amaurotic Family Idiocy. Clinical and Pathological Studies; George B. Hassin, 969.
- American Psychiatric Association, The:
Eighty-fourth annual meeting (Ed.), 191.
Eighty-fifth annual meeting (Ed.), 944.
List of applicants for fellowship or membership, 777-948.
Officers and committees, 1928-29, 772-947.
Proceedings of the eighty-fourth annual meeting, 337.
- Analysis, Group, Remarks on; Hans C. Syz, 141.
- An Experiment in Character Measurements; John N. Washburne (Abs.), 955.
- An Interpretative Study of Involutional Depression; Gerald H. J. Pearson, 289.
- An Introduction to Forensic Psychiatry in the Criminal Courts; B. W. Norwood East, M. D. (Rev.), 598.
- Anxieties, Depressions and Other Affective or Mood Disorders, Clinical Phenomina Associated with; Lloyd H. Ziegler, 849.
- Appointments at the Colorado Psychopathic Hospital (Ed.), 193.
- Arthur Lee Shaw (Obit.), 423.
- Arthur Pendleton Herring (Obit.); William Rush Dunton, Jr., 204.
- Association for Research in Nervous and Mental Disease (Ed.), 576.
- Association of Psychoses with the Puerperium; Eleanora B. Saunders, 669.
- A Study in Psycho-Dynamic Patterns; Gladys C. Terry, 881.
- A Study of the Spinal Fluid Pressure in the Differential Diagnosis of Diseases of the Spinal Cord; B. Stookey and D. Klenke (Abs.), 592.
- A Textbook of Psychiatry for Students in Schools of Nursing; Arthur P. Noyes, First Assistant Physician, St. Elizabeths Hospital (Rev.), 202.

- Biometrical Studies in Psychiatry. III. The Chances of Death; Walter Freeman, 425.
- Birth, Order of, and Size of Family; Neil A. Dayton, 979.
- Blood Pressure, The Adrenalin Curves in Dementia Præcox and the Emotional Psychoses; Leo Kanner, 75.
- Blood Serum, The Specific Gravity of, and Intradermal Testes as Indices of the Water Metabolism; K. E. Appel and C. B. Farr, 53.
- Boys, Psychopathic Personalities among, in a Training School for Delinquents; G. E. Partridge, 159.
- Brief Report of the Use of Sodium Luminal in Mental and Nervous Diseases; Lauren H. Smith, 727.
- Buscaino Black Reaction in Urine, Its Genesis and Diagnostic Value with Special Reference to Mental Diseases; S. Katzenelbogen, 1021.
- Chairman's Address. Section on Convulsive Disorders; G. K. Collier, 269.
- Children, Maladjustment of; Meta L. Anderson (Abs.), 955.
- Choked Disk—The Incidence of Intracranial Tumors without, in One Year's Series of Cases; William P. Van Wagenen (Abs.), 778.
- Clinical Contribution to Drug Addiction: The Struggle for Cure and the Conscious Reasons for Relapse; Lawrence Kolb (Abs.), 591.
- Clinical Note on Staphylococcus Septicemia with Diffuse Involvement of the Nervous System (Purulent Meningitis; Encephalomyelitis, with Involvement of the Basal Ganglia); E. F. Wahl (Abs.), 594.
- Clinical Phenomena Associated with Depressions, Anxieties and Other Affective or Mood Disorders; Lloyd H. Ziegler, 849.
- Common Principles in Psychology and Physiology; John T. MacCurdy, M. D. (Rev.), 416.
- Commonwealth Fellowships at the Colorado Psychopathic Hospital (Ed.), 193.
- Commonwealth Fellowships in Psychiatry at the Boston Psychopathic Hospital (Ed.), 192.
- Complex, Inferiority, The Normal; E. F. Heidbreder (Abs.), 580.
- Conduct, Human, The Psychology of a Review; Percival Bailey, 209.
- Conference on Mental Hygiene in Public Health and Social Work (Ed.), 578.
- Conflict Process, The, and Crime (Abs.), 956.
- Confusion Mentale et Emotion-Choc; Magalhaes Lemos (Abs.), 954.
- Congress, The First International, on Mental Hygiene (Ed.), 949.
- Consciousness, Some Central Nervous System Factors in the Make-up of; Louis Casamajor, 457.
- Convulsions, Infantile, Head-Banging, Breath-Holding, Relation of, to Fainting and Headache (Migraine?) in the Parents; David M. Levy and Hugh T. Patrick (Abs.), 412.
- Cortical Elaboration in Relation to Certain Psychiatric Symptoms, The Three Levels of; Samuel T. Orton, 647.
- Course in Neuropsychiatry at the Colorado Psychopathic Hospital, Denver (Ed.), 1178.

- Creation by Evolution—A Consensus of Present-Day Knowledge as set forth by leading authors in non-technical language that all may understand. Edited by Francis Mason. Foreword by Henry Fairfield Osborn. Introduction by Sir Charles Scott Sherrington (Rev.), 1179.
- Crime and the Conflict Process; E. H. Sutherland (Abs.), 956.
- Crime and Insanity; W. C. Sullivan, M. D. (Rev.), 598.
- Crime, Insanity as a Defense for; Joseph W. Moore, 263.
- Death of Dr. Samuel E. Smith (Ed.), 194.
- Definition by Tendency; William A. White, 251.
- Delinquency, Psychic Factors in Juvenile; Frederick H. Allen (Abs.), 581.
- Dementia Præcox. A Trial and a Retrospect; Henry J. Berkley, 1085.
- Dementia Præcox, the Adrenalin Blood Pressure Curves in, and the Emotional Psychoses; Leo Kanner, 75.
- Depressions, Anxieties and Other Affective or Mood Disorders, Clinical Phenomena Associated with; Lloyd H. Ziegler, 849.
- Depression, Involutional, an Interpretative Study of; Gerald H. J. Pearson, 289.
- Developmental Age; Paul Hanly Furfey, 149.
- Diagnostic Differentiel, difficultes du, Entre la Sclerose Laterale Amyotrophique et les Paralysies Pseudo-Bulbaires; Bertrand and Boeff (Abs.), 954.
- Difficultes du Diagnostic Differentiel Anatomo-Clinique, Entre la Sclerose Laterale Amyotrophique et les Paralysies Pseudo-Bulbaires; Bertrand & Boeff (Abs.), 954.
- Drug Addiction: Clinical Contribution to, The Struggle for Cure and the Conscious Reasons for Relapse; Lawrence Kolb (Abs.), 591.
- Educational Possibilities of a State Psychopathic Hospital; Franklin G. Ebaugh, 443.
- Emotion-Choc et Confusion Mentale; Magalhaes Lemos (Abs.), 954.
- Employee, The Problem, His Study and Treatment; V. V. Anderson (Abs.), 778.
- Encephalography, Experiences with, via the Lumbar Route; E. D. Friedman, W. Snow and J. Kasanin (Abs.), 593.
- Encephalographische Studien an Cronisch Schizophrenen; Jacobi und Winkler (Abs.), 588.
- Endocrines, the, and Epilepsy; J. C. Partridge, 137.
- Epilepsy and the Endocrines; J. C. Partridge, 137.
- Epilepsy, Mechanical Theory of, Some Factors in, with Especial Reference to the Influence of Fluid, and its Control, in the Treatment of Certain Cases; Temple Fay, 783.
- Epilepsy, Metabolism in, IV, The Bicarbonate Content of the Blood; W. G. Lennox (Abs.), 592.
- Epilepsy, Proposed Research in; R. L. Dixon, 1067.
- Epileptics, The New Statistical System for Institutions for; Horatio M. Pollock, 1071.

- Epileptiform Seizures, The Relation of Certain Physicochemical Processes to; William G. Lennox and Stanley Cobb, 837.
- Eugenic Sterilization in California. Marriage Rates of the Psychotic; Paul Popenoe (Abs.), 412.
- Exogene Faktoren bei Schizophrenen Psychosen; M. Fischer (Abs.), 780.
- Experiences with Encephalography via the Lumbar Route; E. D. Friedman, W. Snow, and J. Kasanin (Abs.), 593.
- Experimental Aseptic Meningitis. Therapeutic and Clinical Studies; P. E. Kubitschek and F. A. Carmichael, 97.
- Family, Size of, and Order of Birth; Neil A. Dayton, 979.
- Fellowships, Commonwealth, in Psychiatry at the Boston Psychopathic Hospital (Ed.), 192.
- Fire at the New Jersey State Hospital, Morris Plains (Ed.), 1178.
- First Colloquium on Personality Investigation. Held under the auspices of The American Psychiatric Association, Committee on Relations with Social Sciences, 1089.
- Fluid, and Its Control, in the Treatment of Certain Cases. Some Factors in the "Mechanical Theory of Epilepsy," with Especial Reference to the Influence of; Temple Fay, 783.
- Fluid, Cerebro-Spinal, Forced Drainage of; L. S. Kubie (Abs.), 593.
- Fluid Spinal, Study of the Pressure in the Differential Diagnosis of Diseases of the Spinal Cord; B. Stookey and D. Klenke (Abs.), 592.
- Focal Infection in Teeth; George W. Henry and Mary C. H. Doyle, 915.
- Folklore of the Teeth; Leo Kanner, M. D. (Rev.), 958.
- Forced Drainage of the Cerebrospinal Fluid; L. S. Kubie (Abs.), 593.
- Genius—Some Revaluations; Arthur Jacobson (Rev.), 421.
- Herring, Arthur Pendleton; William Rush Dunton, Jr. (Obit.), 204.
- How the Schools are Meeting this Need (Psychiatric Training for Nurses); Harriet Bailey, R. N. (Abs.), 413.
- Hysteria, Major, with Attacks of Impaired Circulation in the Left Upper Limb; William G. Spiller (Abs.), 779.
- Idiocy, Amaurotic Family; George B. Hassin, 969.
- Infection, Focal, in Teeth; George W. Henry and Mary C. H. Doyle, 915.
- Influence of Malarial Treatment on the Spinal Fluid in General Paralysis; H. A. Bunker, Jr. (Abs.), 593.
- Influenza in Relation to the Onset of Acute Psychoses; T. C. Graves (Abs.), 779.
- Insane, Minnesota in the Development of the Care of Its; Arthur F. Kilbourne, 1077.
- Insanity and Law, A Treatise on Forensic Psychiatry; H. Douglas Singer, M. D., M. R. C. P., etc., and William A. Krohn, A. M., M. D., etc. (Rev.), 781.
- Insanity and the Criminal Law; Wm. A. White, M. D. (Rev.), 782.
- Insanity as a Defense for Crime; Joseph W. Moore, 263.

- Insanity—The Eighth Maudsley Lecture, Dealing with Some of the Work Done to Elucidate the Pathology of the Disease Following to Be Considered Under the Rubric (Abs.), 585.
- International Congress, The First, on Mental Hygiene (Ed.), 949.
- Intracranial Tumors among Mental Hospital Patients. A Histopathological Report with Special Attention to the Tumors of the Glioma Series; Leo M. Davidoff and Armando Ferraro, 599.
- Kalium- und Calciumgehalt des Blutes und der cerebrospinalen Flüssigkeit bei Nervenkranken; M. Neiding and M. Kolik (Abs.), 414.
- Kieb, Dr. Raymond F. C., Reappointment of, 953.
- Lectures in Psychiatry; William A. White, A. M., M. D. (Rev.), 1182.
- Legal Procedure and Science; Roscoe Pound, 33.
- Localization in Animals of Streptococci from Cases of Epidemic Hiccup, Encephalitis, Spasmodic Torticollis and Chorea; E. C. Rosenow (Abs.), 594.
- Luminal, Sodium, Brief Report of the Use of, in Mental and Nervous Diseases; Lauren H. Smith, 727.
- Maladjustment of Children; Meta L. Anderson (Abs.), 955.
- Malarial Treatment, Influence of, on the Spinal Fluid in General Paralysis; H. A. Bunker, Jr. (Abs.), 593.
- Major Hysteria with Attacks of Impaired Circulation of the Left Upper Limb; William G. Spiller (Abs.), 779.
- Marriage Rates of the Psychotic Eugenic Sterilization in California; Paul Popenoe (Abs.), 412.
- Massachusetts Psychiatric Society (Ed.), 410.
- Measurements, Character, An Experiment in; John M. Washburne (Abs.), 955.
- "Mechanical Theory of Epilepsy," Some Factors in, with Especial Reference to the Influence of Fluid, and Its Control, in the Treatment of Certain Cases; Temple Fay, 783.
- Medicine, The Psychiatrist Looks at; L. B. T. Johnson (Abs.), 415.
- Meeting, Annual, The Eighty-Fifth, of The American Psychiatric Association (Ed.), 944.
- Meningitis, Experimental Aseptic, Therapeutic and Clinical Studies; P. E. Kubitschek and F. A. Carmichael, 97.
- Menstruation und Psyche, Wechselseitige Beziehungen Von; Hirschmann-Wertheimer (Abs.), 414.
- Mental Disorders. A Handbook for Students and Practitioners; Hubert J. Norman, M. B., Ch. B. (Edin.), etc. (Rev.), 200.
- Mental Disorder, The Induction of Abortion in the Treatment and Prophylaxis of; J. R. Lord (Abs.), 589.
- Mental Hospital Patients, Intracranial Tumors among; Leo M. Davidoff and Armando Ferraro, 599.
- Mental and Nervous Diseases, Brief Report of the Use of Sodium Luminal in; Lauren H. Smith, 727.

- Mental Hygiene in a University; Lloyd J. Thompson, 1045.
- Mental Hygiene in Public Health and Social Work, Conference on (Ed.), 578.
- Mental Hygiene, The First International Congress on (Ed.), 949.
- Metabolism, Water, The Specific Gravity of the Blood Serum and Intradermal Saline Tests as Indices of the; K. E. Appel and C. B. Farr, 53.
- Metabolism in Epilepsy. IV. The Bicarbonate Content of the Blood; W. G. Lennox (Abs.), 592.
- Meyer's, Dr., Address at Minneapolis (Ed.), 187.
- Mind and Its Disorders; W. H. B. Stoddart, M. D., F. R. C. P. (Rev.), 198.
- Minnesota in the Development of the Care of Its Insane; Arthur F. Kilbourne, 1077.
- Mother—Unmarried; A Socio-Psychiatric Viewpoint; Henry C. Schumacher (Abs.), 582.
- Mother—Unmarried—The Intelligence and Social Background of; Charlotte Lowe (Abs.), 584.
- Nervenkranken, Kalium und Calciumgehalt des Blutes und der Cerebrospinalen Flüssigkeit bei (Abs.), 414.
- Nerve Tracts of the Brain and Cord; William Keiller, F. R. C. S., Edin., Professor of Anatomy and Applied Anatomy, University of Texas (Rev.), 597.
- New Jersey State Hospital, Morris Plains, Fire at the (Ed.), 1178.
- Notes on the Mental Development of Children Exhibiting the Somatic Signs of Puberty Præcox; Lois Doe Kulmann and Calvin P. Stone (Abs.), 579.
- Nursing, Psychiatric, The Value of a Brief Course in; Myra A. Whitney (Abs.), 413.
- Observations on the Sex Problem in America; Edward Sapir, 519.
- Order of Birth and Size of Family. Survey of 10,455 Retarded Children in the Public Schools of Massachusetts; Neil A. Dayton, 979.
- Paralysies Pseudo-Bulbaires Difficultes du Diagnostic Differentiel Entre et la Sclerose Laterale Amyotrophique; Bertrand & Boeff (Abs.), 954.
- Paralysis, General, Recent Methods in the Treatment of; Henry A. Bunker, Jr., 681.
- Parsons, Dr. Frederick D., Reappointment of (Ed.), 953.
- Personalities, Psychopathic, Among Boys in a Training School for Delinquents; G. E. Partridge, 159.
- Personality Investigation and Psychopathic Personality; George E. Partridge, 1053.
- Personality Investigation, First Colloquium on, 1089.
- Personality Records, The Problem of Adequate; Harold D. Lasswell, 1057.
- Personality, The Analysis of; Ives Hendrick, 535.
- Personality, The Study of; Lawson G. Lowrey, 695.
- Physical Findings in Schizophrenia; Karl M. Bowman and Alice F. Raymond, 901.

- Physicochemical Processes, Certain, the Relation of to Epileptiform Seizures; William G. Lennox and Stanley Cobb, 837.
- Postchoreatischen Motilitätsstörungen, Insbesondere die Beziehungen der Chorea Minor Zum Tie, Untersuchungen über; E. Straus (Abs.), 411.
- Pregnancy and Childbirth, The Dynamics of Schizophrenic Reactions Related to; Gregory Zilboorg, 733.
- Presidential Address: American Psychopathological Association; Ross McClure Chapman, 467.
- Presidential Address, American Psychiatric Association, Thirty-Five Years of Psychiatry in the United States and Our Present Outlook; Adolf Meyer, 1.
- Proceedings of Societies:
- American Psychiatric Association, The Proceedings of Eighty-Fourth Annual Meeting, 337.
 - First Colloquium on Personality Investigation. Held Under the Auspices of The American Psychiatric Association, Committee on Relations with Social Sciences, 1059.
 - Joint Meeting of Section of Neurology of the Royal Society of Medicine and The American Neurological Association (Abs.), 195.
- Proposed Research in Epilepsy; R. L. Dixon, 1067.
- Psyche und Menstruation, Wechselseitige Beziehungen von; Hirschmann-Wertheimer (Abs.), 414.
- Psychiatric Nursing, Course in, How the Schools Are Meeting This Need; Harriet Bailey (Abs.), 413.
- Psychiatric Nursing, The Value of a Brief Course in; Myra A. Whitney (Abs.), 413.
- Psychiatric Symptoms, Certain, The Three Levels of Cortical Elaboration in Relation to; Samuel T. Orton, 647.
- Psychiatric, The Massachusetts Society (Ed.), 410.
- Psychiatric Training for Nurses, Value of; Katherine McLean (Abs.), 413.
- Psychiatrist, The Looks at Medicine; L. B. T. Johnson (Abs.), 415.
- Psychiatry, Biometrical Studies in, The Chances of Death; Walter Freeman, 425.
- Psychiatry, Clinical, Psychoanalytic Mechanisms in; William Malamud, 929.
- Psychiatry, Psychologic Trends in, since 1900; Elmer Klein, 273.
- Psychiatry, Sociological Factors Challenging the Practice of, in a Metropolitan District; James S. Plant, 705.
- Psychiatry, Thirty-Five Years of, in the United States and Our Present Outlook. Presidential Address; Adolf Meyer, 1.
- Psychic Factors in Juvenile Delinquency; Frederick H. Allen (Abs.), 581.
- Psychoanalysis and Children: Introduction to the Technic of Child Analysis; Anna Freud (Rev.), 1179.
- Psychoanalysis of Siblings; C. P. Oberndorf, 1007.
- Psychoanalytic Endowment (Ed.), 410.
- Psychoanalytic Mechanisms in Clinical Psychiatry; William Malamud, 929.
- Psychoanalytic Treatment of Schizophrenia; Leland E. Hinsie (Abs.), 590.
- Psycho-Dynamic Patterns, A Study in; Gladys C. Terry, 881.

- Psychologic Trends in Psychiatry Since 1900; Elmer Klein, 273.
- Psychological Medicine; Sir Maurice Craig, M. D., M. R. C. P., and Thomas Beaton, M. D., M. R. C. P. (Rev.), 199.
- Psychology, The, of Human Conduct. A Review; Percival Bailey, 209.
- Psychometric, The, Factor in Medical Problems; F. L. Wells, 235.
- Psychoneuroses, Blood Pressure in; S. Barton Hall (Abs.), 588.
- Psychopathic Hospital, State, Educational Possibilities of; Franklin G. Ebaugh, 443.
- Psychopathic Hospital, Colorado, Course in Neuropsychiatry at (Ed.), 1178.
- Psychopathic Personalities among Boys in a Training School for Delinquents; G. E. Partridge, 159.
- Psychopathic Personality and Personality Investigation; George E. Partridge, 1053.
- Psychopathology, Modern, The Influence of, in State Hospital Practice; William C. Garvin, 661.
- Psychophysiologie et Psychopathologie du Corps Thyroïde; A. Sicco (Rev.), 201.
- Psychoses, Acute—A Consideration of, as Reaction Types; Charles R. Ball, 479.
- Psychoses Acute, Influenza in Relation to the Onset of; T. C. Graves (Abs.), 779.
- Psychoses, Association of, with the Puerperium; Eleanora B. Saunders, 669.
- Psychoses Due to Thyroid Toxemia with Iodine Deficiency; C. H. Bellinger (Abs.), 411.
- Psychoses, Emotional, and Dementia Præcox, The Adrenalin Blood Pressure Curves in; Leo Kanner, 75.
- Psychoses, Functional, Hypothesis of the Mechanism of; L. C. F. Chevans (Abs.), 590.
- Psychoses, Some of the Means for Guidance Approach and Appeal in the, Richard Dewey, 717.
- Psychotherapie, Ueber, der Schizophrenie; G. Bykowski (Abs.), 415.
- Psychotic Reaction in the Psychopath; G. E. Partridge, 493.
- Puberty Præcox, Notes on Mental Development of Children Exhibiting the Somatic Signs of; Lois Doe Kulmann and Calvin P. Stone (Abs.), 579.
- Puerperium, Association of Psychoses with the; Eleanora B. Saunders, 669.
- Query (Ed.), 188.
- Race Prejudice, Some Effects of a Course in American Problems on the, of 450 Undergraduates at the University of Pennsylvania; Donald Young (Abs.), 579.
- Ransom Harvey Sartwell, M. D.; Arthur H. Harrington (Obit.), 963.
- Reaction, Psychoæsthetic; Nathaniel H. Brush, 565.
- Reaction, Psychotic, in the Psychopath; G. E. Partridge, 493.
- Readings in Abnormal Psychology and Mental Hygiene. Edited by W. S. Taylor, Professor of Psychology in Smith College (Rev.), 202.
- Reappointment of Drs. Parsons and Kieb, 953.

- Recent Methods in the Treatment of General Paralysis. A Brief Survey; Henry A. Bunker, Jr., 681.
- Records, The Problem of Adequate Personality, A Proposal; Harold D. Lasswell, 1057.
- Regression, Psychic, The Mechanism of; E. W. Lazell (Abs.), 581.
- Relation of Infantile Convulsions, Head-Banging, Breath-Holding, to Fainting and Headaches (Migraine?) in the Parents; David M. Levy and Hugh T. Patrick (Abs.), 412.
- Remarks on Group Analysis; Hans C. Syz, 141.
- Sartwell, Dr. Ransom H., The Assassination of (Ed.), 771.
- Sartwell, Dr. Ransom Harvey (Obit.), 963.
- Schizophrenen, Cronisch, Encephalographische Studien an; Jacobi und Winkler (Abs.), 588.
- Schizophrenen Psychosen, Exogene Faktoren bei; M. Fischer (Abs.), 780.
- Schizophrenia, Physical Findings in; Karl M. Bowman and Alice F. Raymond, 901.
- Schizophrenia, Psychoanalytic Treatment of; Leland E. Hinsie (Abs.), 590.
- Schizophrenic Reactions Related to Pregnancy and Childbirth, The Dynamics of; Gregory Zilboorg, 733.
- Schizophrenie, Ueber Psychotherapie der; G. Bykowski (Abs.), 415.
- Science and Legal Procedure; Roscoe Pound, 33.
- Sclerose Laterale Amyotrophique Difficultes du Diagnostic Differentiel entre et les Paralysies Pseudo-Bulbaires; Bertrand & Boeff (Abs.), 954.
- Sex, Observations on the Problem, in America; Edward Sapir, 519.
- Shaw, Arthur Lee (Obit.), 423.
- Siblings, Psychoanalysis of; C. P. Oberndorf, 1007.
- Smith, Dr. Samuel E., Death of (Ed.), 194.
- Sociological Factors Challenging the Practice of Psychiatry in a Metropolitan District; James S. Plant, 705.
- Some Central Nervous System Factors in the Make-Up of Consciousness; Louis Casamajor, 457.
- Some Effects of a Course in American Problems on the Race Prejudice of 450 Undergraduates at the University of Pennsylvania; Donald Young (Abs.), 579.
- Some Factors in the "Mechanical Theory of Epilepsy," with Especial Reference to the Influence of Fluid, and Its Control, in the Treatment of Certain Cases; Temple Fay, 783.
- Some of the Means for Guidance Approach and Appeal in the Psychoses; Richard Dewey, 717.
- Staphylococcus Septicæmia with Diffuse Involvement of the Nervous System (Purulent Meningitis; Encephalomyelitis with Involvement of the Basal Ganglia; E. F. Wahl (Abs.), 594.
- Sterilization, Eugenic in California. Marriage Rates of the Psychotic; Paul Popenoe (Abs.), 412.
- Streptococci, Localization in Animals of, From Cases of Epidemic Hiccup, Encephalitis Spasmodic Torticollis and Chorea; E. C. Rosenow (Abs.), 594.

- Teeth, Focal Infection in; George W. Henry and Mary C. H. Doyle, 915.
- Tests, Intradermal Saline and the Specific Gravity of the Blood Serum as Indices of the Water Metabolism; K. E. Appel and C. B. Farr, 53.
- Test, The Sedimentation; Jacob Goldwyn, 59.
- The Adrenalin Blood Pressure Curves in Dementia Præcox and the Emotional Psychoses; Leo Kanner, 75.
- The American Psychiatric Association, Officers and Committees, 1928-1929 (Ed.), 772.
- The Analysis of Personality. A Survey of Psychologists' Experiments; Ives Hendrick, 535.
- The Assassination of Dr. Ransom H. Sartwell (Ed.), 771.
- The Blood Pressure in Psychoneuroses; S. Barton Hall (Abs.), 588.
- The Buscaino Black Reaction in Urine, Its Genesis and Diagnostic Value with Special Reference to Mental Diseases; S. Katzenelbogen, 1021.
- The Clinical Study of Mental Disorders; J. R. Lord, M. B., M. R. C. P. (Rev.), 198.
- The Dynamics of Schizophrenic Reactions Related to Pregnancy and Childbirth; Gregory Zilboorg, 733.
- The Eighth Maudsley's Lecture: Dealing with Some of the Work Done to Elucidate the Pathology of Disease Falling to Be Considered Under the Rubric "Insanity"; Edwin Goodall (Abs.), 585.
- The Eighty-Fifth Annual Meeting of The American Psychiatric Association (Ed.), 944.
- The First International Congress on Mental Hygiene (Ed.), 949.
- The Hypothesis of the Mechanism of the Functional Psychoses; L. C. F. Chevens (Abs.), 590.
- The Incidence of Intracranial Tumors without "Choked Disk" in One Year's Series of Cases; William P. Van Wagenen (Abs.), 778.
- The Induction of Abortion in the Treatment and Prophylaxis of Mental Disorder; J. R. Lord (Abs.), 589.
- The Influence of Modern Psychopathology in State Hospital Practice; William C. Garvin, 661.
- The Intelligence and Social Background of the Unmarried Mother; Charlotte Lowe (Abs.), 584.
- The Mechanism of Psychic Regression; E. W. Lazell (Abs.), 581.
- The New Criminology: A Consideration of the Chemical Causation of Abnormal Behavior; Max G. Schlapp, M.D., and Edward H. Smith (Rev.), 959.
- The New Statistical System for Institutions for Epileptics; Horatio M. Pollock, 1071.
- The Normal Inferiority Complex; E. F. Heidbreder (Abs.), 580.
- The Problem Employee—His Study and Treatment; V. V. Anderson (Abs.), 778.
- The Problem of Adequate Personality Records; A Proposal; Harold D. Lasswell, 1057.
- The Psychæsthetic Reaction; Nathaniel H. Brush, 565.
- The Psychiatrist Looks at Medicine; B. T. Johnson (Abs.), 415.
- The Psychology of Human Conduct. A Review; Percival Bailey, 209.

- The Psychometric Factor in Medical Problems; F. L. Wells, 235.
- The Relation of Certain Physicochemical Processes to Epileptiform Seizures; William G. Lennox and Stanley Cobb, 837.
- The Royal Medico-Psychological Association (Ed.), 768.
- The Sedimentation Test; Jacob Goldwyn, 59.
- The Specific Gravity of the Blood Serum and Intradermal Saline Tests as Indices of the Water Metabolism; K. E. Appel and C. B. Farr, 53.
- The Study of Personality; Lawson G. Lowrey, 695.
- The Three Levels of Cortical Elaboration in Relation to Certain Psychiatric Symptoms; Samuel T. Orton, 647.
- The Unmarried Mother; A Socio-Psychiatric Viewpoint; Henry C. Schumacher (Abs.), 582.
- The Value of a Brief Course in Psychiatric Nursing; Myra A. Whitney, R. N. (Abs.), 413.
- The Ways of Behaviorism; John B. Watson, A. M., Ph. D., LL. D. (Rev.), 961.
- Thyroid Toxemia with Iodine Deficiency, Psychoses Due to (Abs.), 411.
- Treatment of General Paralysis, Recent Methods in.—Henry A. Bunker, Jr., 681.
- Tumors, Intracranial, among Mental Hospital Patients; Leo M. Davidoff and Armando Ferraro, 599.
- Tumors, Intracranial, the Incidence of without "Choked-Disk" in One Year's Series of Cases; William P. Van Wagenen (Abs.), 778.
- Types, Reaction, A Consideration of the Acute Psychoses as; Charles R. Ball, 479.
- Ueber Psychotherapie der Schizophrenie; G. Bykowski (Abs.), 415.
- University, Mental Hygiene in a; Lloyd J. Thompson, 1045.
- Untersuchungen über die Postchoreatischen motilitätsstörungen, Insbesondere die Beziehungen der Chorea Minor zum Tic; E. Straus (Abs.), 411.
- Urine, The Buscaino Black Reaction in; S. Katzenelbogen, 1021.
- Value of Psychiatric Training for Nurses; Katherine McLean, R. N. (Abs.), 413.
- Wechselseitige Beziehungen von Menstruation und Psyche; Hirschmann-Wertheimer (Abs.), 414.
- White, Dr. William A., Quarter-Centenary as Medical Superintendent of St. Elizabeths Hospital, Washington (Ed.), 572.

AUTHORS' INDEX

- Appel, K. E., and Farr, C. B.; The Specific Gravity of the Blood Serum and Intradermal Saline Tests as Indices of the Water Metabolism, 53.
- Bailey, Percival; The Psychology of Human Conduct. A Review, 209.
- Ball, Charles R.; A Consideration of the Acute Psychoses as Reaction Types, 479.
- Berkley, Henry J.; Dementia Præcox. A Trial and a Retrospect, 1085.
- Bowman, Karl M., and Raymond, Alice F.; Physical Findings in Schizophrenia, 901.
- Brush, Nathaniel H.; The Psychæsthenic Reaction, 565.
- Bunker, Henry A., Jr.; Recent Methods in the Treatment of General Paralysis. A Brief Survey, 681.
- Carmichael, F. A., and Kubitschek, P. E.; Experimental Aseptic Meningitis. Therapeutic and Clinical Studies, 97.
- Casamajor, Louis; Some Central Nervous System Factors in the Make-Up of Consciousness, 457.
- Chapman, Ross McClure; Presidential Address: American Psychopathological Association, 467.
- Cobb, Stanley, and Lennox, William G.; The Relation of Certain Physicochemical Processes to Epileptiform Seizures, 837.
- Collier, G. K.; Chairman's Address. Section on Convulsive Disorders, 269.
- Davidoff, Leo M., and Ferraro, Armando; Intracranial Tumors among Mental Hospital Patients, 599.
- Dayton, Neil A.; Order of Birth and Size of Family, 979.
- Dewey, Richard; Some of the Means for Guidance Approach and Appeal in the Psychoses, 717.
- Dixon, R. L.; Proposed Research in Epilepsy, 1067.
- Doyle, Mary C. H., and Henry, George W.; Focal Infection in Teeth, 915.
- Dunton, Wm. Rush, Jr.; Arthur Pendleton Herring (Obit.), 204.
- Ebaugh, Franklin G.; Educational Possibilities of a State Psychopathic Hospital, 443.
- Farr, C. B., and Appel, K. E.; The Specific Gravity of the Blood Serum and Intradermal Saline Tests as Indices of the Water Metabolism, 53.
- Fay, Temple; Some Factors in the "Mechanical Theory of Epilepsy," with Especial Reference to the Influence of Fluid, and Its Control, in the Treatment of Certain Cases, 783.

- Ferraro, Armando, and Davidoff, Leo M.; Intracranial Tumors among Mental Hospital Patients, 599.
- Freeman, Walter; Biometrical Studies in Psychiatry, 425.
- Furfey, Paul Hanly; Developmental Age, 149.
- Garvin, William C.; The Influence of Modern Psychopathology in State Hospital Practice, 661.
- Goldwyn, Jacob; The Sedimentation Test, 59.
- Harrington, Arthur H.; Ransom Harvey Sartwell (Obit.), 963.
- Hassin, George B.; Amaurotic Family Idiocy, 969.
- Hendrick, Ives; The Analysis of Personality. A Survey of Psychologists' Experiments, 535.
- Henry, George W., and Doyle, Mary C. H.; Focal Infection in Teeth, 915.
- Kanner, Leo; The Adrenalin Blood Pressure Curves in Dementia Præcox and the Emotional Psychoses, 75.
- Katzenelbogen, S.; The Buscaino Black Reaction in Urine, Its Genesis and Diagnostic Value with Special Reference to Mental Diseases, 1021.
- Kilbourne, Arthur F.; Minnesota in the Development of the Care of Its Insane, 1077.
- Klein, Elmer; Psychologic Trends in Psychiatry Since 1900, 273.
- Kubitschek, P. E., and Carmichael, F. A.; Experimental Aseptic Meningitis. Therapeutic and Clinical Studies, 97.
- Lasswell, Harold D.; The Problem of Adequate Personality Records; A Proposal, 1057.
- Lennox, William G., and Cobb, Stanley; The Relation of Certain Physicochemical Processes to Epileptiform Seizures, 837.
- Lowrey, Lawson G.; The Study of Personality, 695.
- Malamud, William; Psychoanalytic Mechanisms in Clinical Psychiatry, 929.
- Meyer, Adolf; Presidential Address. Thirty-Five Years of Psychiatry in the United States and Our Present Outlook, 1.
- Moore, Joseph W.; Insanity as a Defense for Crime, 263.
- Oberndorf, C. P.; Psychoanalysis of Siblings, 1007.
- Orton, Samuel T.; The Three Levels of Cortical Elaboration in Relation to Certain Psychiatric Symptoms, 647.
- Partridge, G. E.; Psychopathic Personalities among Boys in a Training School for Delinquents, 159.
- Partridge, G. E.; Psychotic Reaction in the Psychopath, 493.
- Partridge, George E.; Psychopathic Personality and Personality Investigation, 1053.
- Partridge, J. C.; Epilepsy and the Endocrines, 137.

- Pearson, Gerald H. J.; An Interpretative Study of Involutional Depression, 289.
- Plant, James S.; Sociological Factors Challenging the Practice of Psychiatry in a Metropolitan District, 705.
- Pollock, Horatio M.; The New Statistical System for Institutions for Epileptics, 1071.
- Pound, Roscoe; Science and Legal Procedure, 33.
- Raymond, Alice F., and Bowman, Karl M.; Physical Findings in Schizophrenia, 901.
- Sapir, Edward; Observations on the Sex Problem in America, 519.
- Saunders, Eleanora B.; Association of Psychoses with the Puerperium, 669.
- Smith, Lauren H.; Brief Report of the Use of Sodium Luminal in Mental and Nervous Diseases, 727.
- Syz, Hans C.; Remarks on Group Analysis, 141.
- Terry, Gladys C.; A Study in Psycho-Dynamic Patterns, 881.
- Thompson, Lloyd J.; Mental Hygiene in a University, 1045.
- Wells, F. L.; The Psychometric Factor in Medical Problems, 235.
- White, William A.; Definition by Tendency, 251.
- Ziegler, Lloyd H.; Clinical Phenomena Associated with Depressions, Anxieties and Other Affective or Mood Disorders, 849.
- Zilboorg, Gregory; The Dynamics of Schizophrenic Reactions Related to Pregnancy and Childbirth, 733.

LIST OF ILLUSTRATIONS

Frontispiece: Adolf Meyer.

The Adrenalin Blood Pressure Curves in Dementia Præcox and The Emotional Psychoses:

Graphs I, 1a, 2-23, 23a, 24-43, 79; 81; 83; 85; 87; 89; 91; 92.

Experimental Aseptic Meningitis: Therapeutic and Clinical Studies:

Chart I, 113; Chart II, 115.

Epilepsy and the Endocrines:

Chart, 138.

Biometrical Studies in Psychiatry:

Fig. 1, 426; Figs. 2, 3, 429; Figs. 4, 5, 430; Figs. 6, 7, 431; Fig. 8, 433;

Fig. 9, 434; Figs. 10, 11, 436; Figs. 12, 13, 438.

Educational Possibilities in a State Psychopathic Hospital:

Plate I, 450.

Intracranial Tumors among Mental Hospital Patients:

Plates II-XXIV, 646.

The Dynamics of Schizophrenic Reactions Related to Pregnancy and Child-birth:

Fig. A, 761.

Some Factors in the "Mechanical Theory of Epilepsy" with Especial Reference to the Influence of Fluid and Its Control in the Treatment of Certain Cases:

Plates XXV-XLVI, 836.

The Relation of Certain Physicochemical Processes to Epileptiform Seizures:

Fig. 1, 839; Fig. 2, 840; Fig. 3, 841; Fig. 4, 842; Fig. 5, 844.

Clinical Phenomena Associated with Depressions, Anxieties and Other Affective or Mood Disorders:

Fig. 1, 874.

A Study of Psycho-Dynamic Patterns:

Chart I, 884-885; Chart II, 886-887; Curves I-II, 889; Chart III, 892.

Physical Findings in Schizophrenia:

Chart 1, 902; Chart 2, 904; Chart 3, 908; Chart 4, 909; Chart 5, 912.

Focal Infection in Teeth:

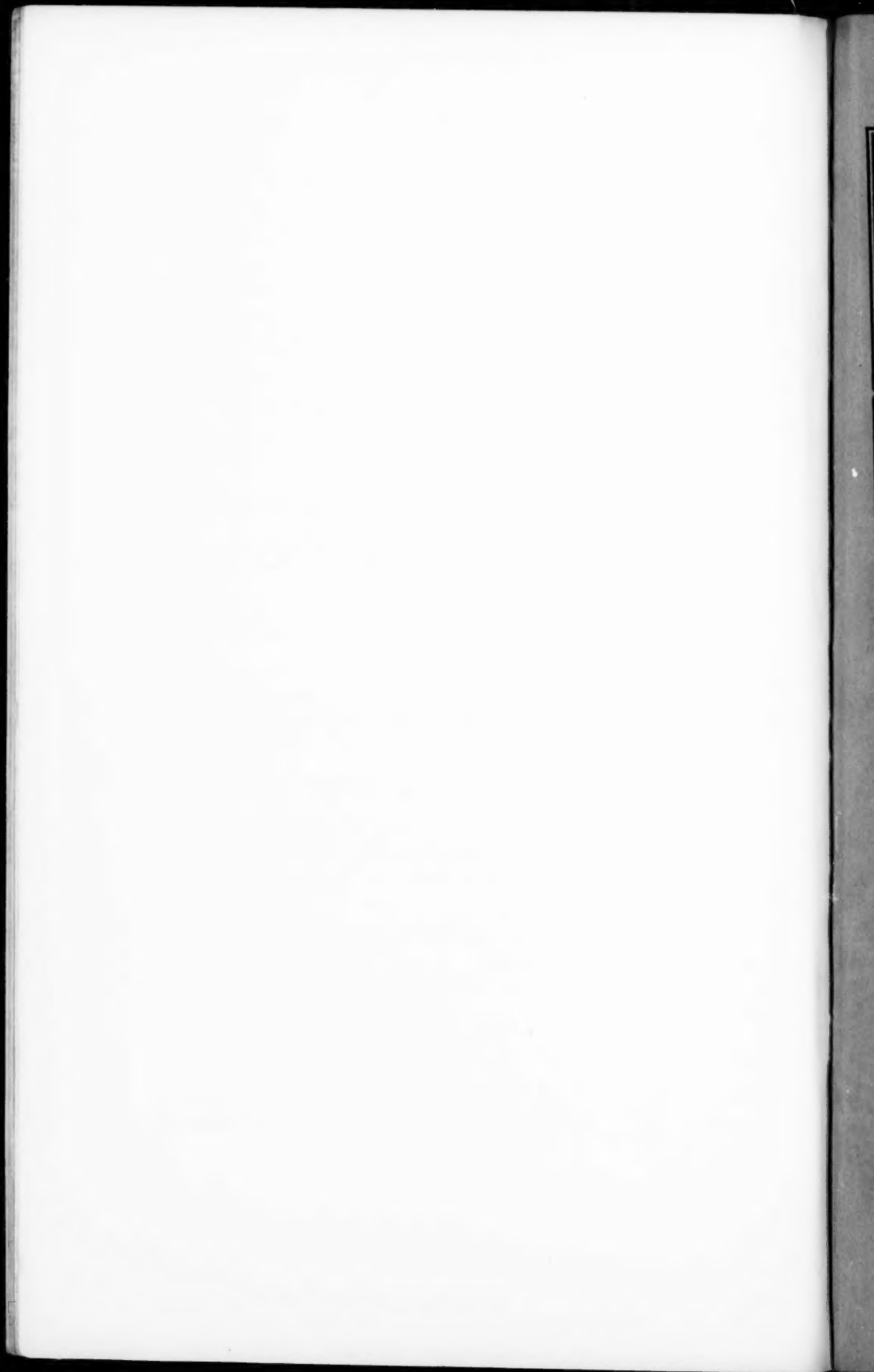
Plates XLVII-XLVIII, 926.

Amaurotic Family Idiocy:

Plates XLIX-LI, 978.

Order of Birth and Size of Family:

Graph I, 981; Graph II, 982; Graph III, 984; Graph IV, 990; Graph V, 993; Graph VI, 995; Graph VII, 997; Graph VIII, 999; Graph IX, 1003.



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